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PETROLEUM

U. S. Oil Administration Issues Price Schedule • Codes and Price Fixing Interest Convention • A. P. I. Discusses Modern Technical Problems • Analysis of British Motor Fuel Market • Combination Units Facilitate Refining • Lube Refining Process

NOVEMBER • 1933

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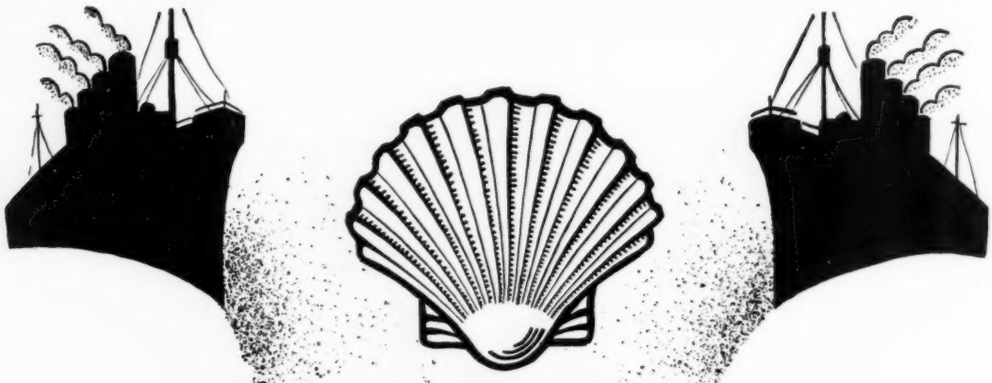

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Night View of the Whiting Plant

Courtesy Standard Oil Co. (Indiana)

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PETROLEUM

Keystone of Regulation

PREVENTION of overproduction has been recognized from the beginning as the keystone of the effort to improve the status of the oil business in the United States under the code which went into effect on September 8. Compared to this primary essential the issue of price fixing is of decidedly minor importance. Secretary Ickes summed up the situation in his statement of October 17 when he said there was no use fixing prices unless supply and demand could be brought within speaking distance. The case might be put more forcibly. With production held to the level of current demand price fixing is superfluous; if it is not so limited attempts at price fixing will be futile.

For three months, from June until September, while the code of fair competition was in the making, the oil industry was on notice that costs and prices both were soon to advance. The impulse to speed up operations, to produce under known conditions of cost supplies that could be sold later at a profit, was a natural one. Output of crude rose to nearly 3,000,000 bbl. daily, more than 500,000 bbl. more than was needed to keep pace with demand. Refining activities increased. When the code came into effect crude and refined stocks were both unduly high and every available railway siding near the big mid-western markets was filled with tank cars of gasoline awaiting buyers.

The figure adopted for allowable production of crude was fixed at first on the liberal side at 2,413,700 bbl. daily and actual output exceeded the allowable by more than 4,000,000 bbl. during September. From October 1 the authorized daily production was reduced to 2,338,500 bbl. Actual output continued to overrun this level during October and this situation undoubtedly was responsible for the vigorous tone of Secretary Ickes's announcement that unless state regulatory bodies had by November 1 brought down production to the quotas set by the oil administration the federal government would exercise its power to stop the movement of excess oil into interstate commerce.

It is a fair assumpton that the announcement of a schedule of minimum prices for crude oil and products, which was made on October 16 but is not to take effect until December 1, was influenced by a desire to sustain a price structure which was sagging in various parts of the country.

The restriction of runs to stills which had as its avowed purpose to "set up proper ratios between gasoline inventories and sales" for each district is another move in the same direction. Before the price schedule becomes effective opportunity is to be presented to file objections to its terms and to propose changes, and undoubtedly many suggestions of this kind will be submitted.

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Objections to Price Fixing

ONE POINT that already has been raised is that the minimum price proposed for fuel oil is too low in proportion to the price of gasoline, but those who advocate cracking to the fullest possible extent maintain that a low fuel oil price is really in the interest of conservation since it offers an inducement to utilize this grade of oil for the production of more gasoline rather than for consumption in unchanged form as fuel. Although the demand for price-fixing has come largely from independent interests as contrasted with the large integrated companies some of the smaller refiners and marketers are protesting against the establishment of minimum prices on the ground that without the privilege of underselling their business will be lost to the large companies offering brands that have been made widely known through advertising. Other objections relate to octane base ratings provided in the schedule. Many of the oil companies have their accountants engaged in estimating the extent of the additions to their costs that will result from the requirements of the code as to wages and hours of labor. Their attitude toward the price schedule probably will be influenced by the degree to which the margins provided in the schedule cover these additional costs. The whole price schedule has been put forward rather tentatively and it is conceivable that it may be extensively modified or even suspended if conditions do not appear to demand its application.

That Secretary Ickes himself maintains an open mind on this subject of price control is indicated by the emphasis placed in his address before the American Petroleum Institute upon the readiness of the oil administration to modify the proposed price schedules in the light of any facts that might be developed justifying changes and his statement that the schedule would be put into effect on December 1 "if it is believed that on that date an emergency exists that calls for the fixing of prices." On the other hand his position on the control of production is unequivocal as reflected by his statement in the same address, "We cannot, by executive fiat, control price without controlling the things that control the price."

Reduction Necessary

BECAUSE the country's crude production was not immediately brought down to the figure set by the oil administration it by no means follows that the plan of operation contemplated by the code is unworkable. The effect of this oversupply upon motor fuel prices does indicate, however, the absolute necessity of keeping output from exceeding current market requirements if the various branches of the industry are to sustain the added burden of cost put upon them by adherence to the requirements of the code and if they are to retain a margin of profit.

With the slackening of demand that normally occurs during the winter months further reductions in allowable are certain to be required. The figure of 2,130,000 bbl. set for December and January may prove still to be too high. It certainly will be so unless illegal output in the form of "hot oil" can be stamped out completely and unless state authorities display real energy in bringing state production within the quotas established. Producers already have had the satisfactory experience of deriving a larger income from a lessened production and the great majority of them are genuinely anxious to see the code succeed. In order that it may do so it is important that the attention of both the trade and the oil administration be concentrated steadily on the main essential and not diverted to minor or extraneous issues.

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Setbacks to Monopoly

PROJECTS for monopolization of the petroleum industry as a government enterprise have been put forward in at least a dozen different countries in the past year and have been made the subject of extensive agitation in some. These proposals usually attract a certain amount of support at first from the radical elements that exist in all countries and from the unthinking who are even more numerous. It is when the practical details of the application and operation of such a system come to be examined that the enterprise assumes a less attractive aspect. Thus we find that a number of these projects which have been under consideration for some time are being quietly laid on the shelf.

In Argentina, where government operation was being seriously urged, the Congress has adjourned without taking action on the subject which seems now to be put over definitely until next May at the earliest. In Uruguay opposition on the part of the oil companies to the price fixing program of the government caused the latter to announce its intention of erecting a refinery and entering the business on its own account, but inability to finance the project has prevented it from going beyond the stage of discussion. In France the fall of the Daladier ministry, the difficulties of adopting a budget and the need of revenue from the taxation of petroleum products to meet urgent fiscal needs seem to have put the much discussed project of an oil monopoly in the background, temporarily at least.

Sweden is the latest country to undertake consideration of a monopoly and the matter has been made the subject of a report by a special committee which is to be submitted to the Riksdag for consideration at its coming session. In view of the low price at which motor fuel has been selling in Sweden and the poor financial showing made by the petroleum companies operating there a monopoly could offer nothing to the users of motor fuel in the way of lower costs while the sacrifice of the large revenue derived from petroleum taxes would be a serious matter for the state treasury. Operators of motor vehicles see in the monopoly proposal an effort to penalize them for the benefit of the state railways and are aligned in opposition to the plan. The inadequate service provided under the monopoly in Spain as described in the October number of WORLD PETROLEUM has been cited as an argument against the plan.

Petroleum is such an important contributor to the public treasury and the possibility of squeezing more and more income from it so long as it remains in private hands is so useful to directors of the exchequer that when the direct issue is presented to responsible state officials they hesitate to sacrifice this substantial backlog of revenue on the altar of political theory, even though the theory may have had their support.

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Cadman's Good Advice

TO THE DEBATE on coal vs. oil, which has been going on, at times somewhat acrimoniously, in the United Kingdom, Sir John Cadman has contributed some illuminating ideas. In his address as Melchett Medallist before the Institute of Fuel last month the scholarly chairman of the Anglo-Persian Oil Company pointed out that while oil fuel has displaced coal to a considerable extent for certain special uses such as the propulsion of ocean steamships it has contributed in many other ways to the greater use of coal so that oil is on balance a benefactor of coal rather than a damaging competitor. He showed that the substitution of oil fuel accounted only for a very small part of the decrease in demand for British coal which was traceable to a number of causes, including the greater economy with which all forms of fuel are utilized as a result of modern technical progress.

Sir John Cadman's lecture was in substance an argument for the adoption of an enlightened policy which should develop the use both of coal and oil along scientific lines, utilizing each of the two fuels for the purposes to which it could most economically and successfully be applied and avoiding attempts to force either into employment for which the other is better suited. This is a counsel of wisdom to which the governmental authorities of the United Kingdom might well give heed. If such a policy were to be adopted it undoubtedly would command the approval and support of the more influential factors in the oil industry.

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A Merger Abandoned

DURING the past month announcement was made, in inconspicuous fashion, that the proposal for consolidation of Standard Oil Company (New Jersey) and Standard Oil Company of California had been dropped and that discussions to this end had been abandoned. Early last year, when the amalgamation of the two companies appeared to be imminent, WORLD PETROLEUM pointed out objections to the plan on the ground that it would engender public opposition and that it was not of particular advantage to shareholders. Since that time extensive changes have been made by Jersey Standard both in its domestic and export sales organizations. Adaptation of its production to the changing requirements of markets outside the United States is being accomplished by other arrangements such as that recently concluded with Socony-Vacuum. Addition of the California company's facilities to its own probably now appear less essential from the viewpoint of the Jersey organization. At the same time the development of conflicting views on the part of leading officials of the two companies in reference to governmental price fixing and other public issues may have created a willingness on both sides to abandon the proposal. Neither company is in the position where it needs the strengthening influence of external additions and undoubtedly they can serve the public and their own stockholders fully as well by remaining separate entities as they could in combination.

U. S. Oil Administration Issues Price Schedule

Minimum Prices for Crude and Products Effective December 1, Subject to Change After Hearings—Secretary Ickes Warns of Rigorous Action Against Overruns—Dec.-Jan. Allowable Reduced.

THREE noteworthy events have taken place during the month of October in connection with the movement to improve conditions in the oil industry of the United States under federal regulation.

The first of these was the promulgation of a schedule of minimum prices for crude oil and products to become effective from December 1, 1933, subject to such changes or modifications as may be determined upon as a result of protests or objections which interested parties are requested to submit to the Petroleum Administrative Board on or before November 15.

The second was the announcement by Secretary of the Interior Ickes in his capacity as Oil Administrator that unless the oil producing states by November 1 had brought their output within the limits of the production quotas assigned he would exercise his authority to curtail shipments from these states in interstate commerce.

A third significant development was the order issued by the Secretary on October 24 placing the total allowable crude production for the whole country at 2,130,000 bbl. daily for the months of December and January as compared with the present allowable of 2,338,500 bbl. and the initial figure of 2,409,700 bbl. fixed for the month of September.

Another order of the Oil Administration authorized the Planning and Coordination Committee to recommend and specify to all refiners the amount of crude runs necessary to maintain proper gasoline inventories in each district of the country and making it a violation of the code to exceed such recommended runs and manufacture.

These orders represent the formulation of a policy of keeping the output of crude oil and manufactured products as nearly as possible in balance with current demand and of maintaining a proper relationship between prices of crude oil and its products and preventing the disturbance of the marketing system through price cutting. The announcement in regard to the enforcement of quota provisions from November 1 was a clear-cut warning to state regulatory officials that a continuance of excessive production would result in cutting off the product of offending states from interstate shipment. The reduction in allowable and the regulation of runs to stills was in furtherance of the attempt to keep output in balance with seasonal market demand.

Close attention has been centered on the proposed price schedule since the establishment of minimum prices represents a policy on which there exists a sharp division of opinion within the industry itself The schedule is an elaborate one as it establishes minimum prices for each producing field and differentials for all the various grades produced in different parts of the country. The basic price for 36–36.9 crude in the Mid-continent and Gulf Coast fields is set at $1.11 per bbl. and the price for 64–64.9 octane gasoline in the same territory is placed at 6½ cents per gallon. The scale of prices for the principal producing territories are shown in accompanying tables. For California a schedule for each of the important producing fields of the state is provided with prices ranging upward from a minimum of 65 cents per bbl. for 14–14.9 gravity crude to $1.55 for 38–38.9 gravity in the Santa Fe Springs district.

In the order accompanying the publication of the price schedule it is specified that objections to any of its provisions may be filed up to November 15. These objections are to be considered at hearings of the Federal Administrative Board and the schedule may be modified or amended after submission of findings based upon such hearings or upon independent investigations conducted by the Board. Inquiry among producers, refiners and marketers indicates that many objections and suggestions for changes in various features of the schedule will be submitted.

Minimum Prices per bbl. for Crude Oil

Grade	Mid-continent and North and Central Texas	Gulf Coast, Texas and Louisiana
Below 25°	$0.87	$0.99
25–25.9	.89	1.00
26–26.9	.91	1.01
27–27.9	.93	1.02
28–28.9	.95	1.03
29–29.9	.97	1.04
30–30.9	.99	1.05
31–31.9	1.01	1.06
32–32.9	1.03	1.07
33–33.9	1.05	1.08
34–34.9	1.07	1.09
35–35.9	1.09	1.10
36–36.9	1.11	1.11
37–37.9	1.13	1.13
38–38.9	1.15	1.15
39–39.9	1.17	1.17
40 and over	1.19	1.19

Minimum Prices for Petroleum Products

Mid-Continent

	Cents
60–64.9 octane gasoline (per gal.)	6.5
42–44 w. w. kerosene (per gal.)	4.75
41–43 w. w. kerosene (per gal.)	4.50
38–40 furnace distillate (per gal.)	3.50
32–36 zero gas oil (per gal.)	3.00
	Dollars
14–18 fuel oil (per bbl.)	0.66
18–22 fuel oil (per bbl.)	0.71
22–26 fuel oil (per bbl.)	0.735

Minimum Prices for Petroleum Products at Ports

Gulf Coast		Eastern Seaboard	
60–64.9 octane gasoline:	Cents		Cents
f.o.b. tanker (per gal.)	6.50	f.o.b. terminal or barge (per gal.)	7.25
f.o.b. tank car (per gal.)	6.75	f.o.b. tank car (per gal.)	7.50
Kerosene:			
f.o.b. tanker (per gal.)	5.25	f.o.b. terminal or barge (per gal.)	6.00
f.o.b. tank car (per gal.)	5.50	f.o.b. tank car (per gal.)	6.25
Gas Oil:			
f.o.b. tanker (per gal.)	3.75	f.o.b. terminal or barge (per gal.)	4.50
f.o.b. tank car (per gal.)	4.00	f.o.b. tank car (per gal.)	4.75
Bunker fuel:	Dollars		Dollars
f.o.b. tanker (per bbl.)	0.79	f.o.b. terminal (per bbl.)	1.05
f.o.b. tank car (per bbl.)	0.84		

Code and Price Fixing Interest Convention

Annual Meeting of American Petroleum Institute at Chicago Registers Hearty Support of Oil Administration's Efforts to Regulate Production and Stamp Out Hot Oil.

GOVERNMENT price fixing and the effect of the code of fair competition on the operations and prospects of the oil industry were the chief topics of discussion among those in attendance at the annual meeting of the American Petroleum Institute held in Chicago October 24–26. Sentiment in support of the oil administration was strongly in evidence and agreement on the necessity of strict adherence to the requirements of the code was practically unanimous. As to the wisdom of price fixing opinion is still divided but those who have opposed this policy indicated that they would observe the price schedule loyally if it was finally put into effect.

The difficulty of determining prices satisfactorily under the diverse conditions existing in different parts of the country was indicated by the large number of complaints and criticisms voiced by those in attendance at the meeting. Many of these relate to the differentials proposed for various grades but there are objections also to the octane base adopted, to the prices fixed for fuel oils and to the dealer margins provided. From the number and variety of the criticisms heard it seems certain that the Petroleum Administrative Board will be kept fully occupied in hearing protests and reviewing provisions of the schedule during the coming month.

Opponents of price fixing drew some satisfaction from the statement of Secretary Ickes in the course of his address that the price schedule would go into effect on December 1, "if it is believed that on that date an emergency exists that calls for the fixing of prices." This was interpreted as indicating that with a satisfactory price situation in existence application of the schedule might be delayed or abandoned.

Secretary Ickes aroused the enthusiasm of the meeting by his address and particularly by those passages in which he declared his determination to keep supply from outrunning demand, to force the observance of state quotas and to put an end to the running of "hot oil." Some of the Oil Administrator's striking utterances on these points were as follows:

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Harold L. Ickes

"No one would attempt to argue that practical regulation of the oil industry is possible unless supply and demand are equalized as closely as possible. . . . Price fixing, powerful and drastic remedy that it is, cannot serve to keep prices where they ought to be if production is allowed to be out of bounds. . . . We cannot, . . . control price without controlling the things that control the price.

"I regret to say that in spite of the fair attitude of the government with respect to production there has been some cheating. Production in some fields has not been kept within the allowable, with the result that the overproduction of crude, resulting in an over-supply of gasoline, has been a great weight on the market. . . . I am informed that there is still too much oil being produced and unless production is restricted to the figures permitted by my last order I intend to exercise the drastic powers given me by the oil code. If necessary I will invoke these extraordinary powers on November 1 next and fair notice has been given to every producer that the administration means business when it puts a limit upon the crude to be produced.

"I regret to say that lately there has been a renewed attempt to produce 'hot oil' and I assure you that we shall diligently and assiduously keep after these renegades until we succeed in forcibly persuading them that the federal law is not lightly to be disregarded."

In his annual address President Axtell J. Byles of the Institute pledged its support to the NRA and expressed confidence in the permanent good to be derived from some features of the petroleum code. He directed attention, however, to the handicap under which the industry was placed by excessive inventories, saying:

"We start as of October 1, this year, with a handicap of at least 150,000,000 bbl. excess crude in above-ground storage and of approximately 9,800,000 bbl. of excess gasoline inventories, which practically reverses the position as to this commodity attained earlier in the year. These inventories cause pressure upon the market and should be liquidated in an orderly way and to that extent diminish current production."

Other noteworthy talks before the convention were those of Wirt Franklin, chairman of the Planning and Coordination Committee which was an enthusiastic plea in support of "The New Deal for Oil" and an address by Charles E. Arnott, chairman of the marketing division's enforcement group, in which he

described the work of the committee. Mr. Arnott said that there was no dissension in the organization, that complaints of violations of the marketing code were being followed up and that if persuasion was unsuccessful in bringing code violators into line the full legal powers of the committee would be used.

Gen. Baird H. Markham in his report as director of the American Petroleum Industries Committee reviewed its work during the past year and urged the industry to adopt a more aggressive attitude in opposing excessive taxation and unjust legislation.

The usual large number of papers dealing with various phases of oil industry activities were presented before the various sectional meetings. Abstracts of some of these papers are presented in an accompanying article.

An amendment to the existing oil code was proposed by Judge Amos L. Beaty and approved by the directors. It would provide that the President or the federal oil agency "may establish quotas in commerce for crude petroleum from any or all of the various pools and properties and storage sources in the United States" and making shipment in excess of such quotas a violation of the code. It is intended to strengthen the hand of the oil administration in dealing with excess production.

The board of directors of the Institute was increased from 77 to 84 and the new places were filled by election of the following: E. L. Smith, Mexia, Tex.; Paul G. Blazer, Ashland, Ky.; Ralph I. Zook, Bradford, Pa.; W. S. S. Rodgers, New York; A. Jacobsen, New York; B. L. Majewski, Deep Rock Oil Company, and W. R. Boyd, executive vice president of the American Petroleum Institute.

K. R. Kingsbury, Standard Oil Company of California, was elected vice-president at large; C. F. Roeser, Fort Worth, Texas, vice president in charge of production; Howard Bennette, Western Refiners' Association, vice-president for refining; C. E. Arnott, Socony-Vacuum Corporation, vice-president for marketing; H. L. Pratt, Socony-Vacuum Corporation, treasurer; Lacey Walker, assistant treasurer.

The executive committee for 1934 consists of Vice-presidents Kingsbury, Roeser and Bennette, President Byles, Treasurer Pratt, W. C. Teagle, H. F. Sinclair, F. A. Leovy, E. G. Seubert, J. Howard Pew and J. C. van Eck.

It was decided to hold the next annual meeting at Dallas, Texas, Nov. 13–15.

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A. P. I. Discusses Modern Technical Problems

Abstracts of Technical Papers Delivered at Annual Meeting of American Petroleum Institute in Chicago Indicate Keen Interest in Processes for Refining Lubricating Oils.

A FEATURE of the recent meeting of the American Petroleum Institute was an address by Mr. A. E. Dunstan, of the Anglo-Persian Oil Company, who reviewed his experience and observations in research and refinery practice during the past 20 years which, as is well known, have been crowded with revolutionary changes in the petroleum industry. Twenty years ago the refining industry was working with shell stills, much machinery was still being lubricated with vegetable fats; the asphalt road was scarcely known; the middle distillates of the gas-oil class were used only in the coal-gas industry; octane rating was unheard of; the problems of the high-speed high-efficiency gasoline motor had not arisen; cracking was being talked about but it was vapor-phase cracking that appealed to most oil men, and the scientific and technological organization of the industry for the common benefit was still to come.

One of the first large problems of the oil industry which the speaker had a part in solving was the utilization of natural gas in regions remote from centers of consumption. The solution of this problem is an example of the first fruits of advanced knowledge of organic and physical chemistry in the service of the oil industry. Since the gas could not be used otherwise, some way had to be found to convert it into exportable products and this was finally accomplished by transforming it into olefines and converting these into high-grade anti-knock gasoline. Thus from distant fields there came a bit of progress that has become standard practice in cracking plants for reducing gas losses.

The cracking process itself has undergone remarkable changes in the last 20 years. Vapor-phase cracking has largely given place to liquid-phase cracking, but the chief trend of progress has been from quantity cracking toward quality cracking, and the correlated improvement of the refined gasoline.

But there has been a tendency to carry refining to absurd extremes. "Looking backward on two decades of experimental work on the chemical treatment of gasoline," said Mr. Dunstan, "it is amusing to contemplate the vast amount of unnecessary effort that has been expended. I remember when sulphur content was being reduced to 0.01 percent, which was hailed as a great achievement but which is really absurd. It is divorcing specifications from common sense. We are in a happier position today, in that scientific common sense is being applied to the education of the consumer; but in the matter of specifications let us beware of forging fetters for ourselves that have sales talk as the only real object. I shudder when I hear of a new test, and rejoice when yet another test is declared obsolete. I welcome efforts to bring about a simple international code of testing."

The position is still somewhat irrational. "Unnecessary stress is put upon the physical properties of gasoline, especially color. The refiner has to face costs and losses not commensurate with the advantages conferred upon his product. All that is really needed is chemical and physical stability, volatility, and

anti-knock value." Mr. Dunstan remembers that during the war he drove a car on the forerunnings of a benzol rectification plant that contained 60 percent of carbon disulphide, without unpleasant happenings. "The public has been spoiled."

The development that has really dominated recent progress in the refining industry is the extension of fuel and engine research, and herein appears to lie a large part of the future of the oil business. The whole picture of engine performance has radically changed, and the refiner has had to change with it. The low-compression engines of 1925, which could satisfactorily utilize straight-run gasoline now have compression ratios that are at least 30 percent higher and develop more power without higher gasoline consumption. In this process the engines have ceased to be omnivorous, but must be fed with a fuel of a nicely adjusted composition. All the emphasis is now on anti-knock quality and the day of unblended gasoline is done. Oil refining and gasoline production have become really scientific processes working toward a definite result.

Of nearly equal significance has been the growing importance of the high-speed Diesel engines for transport; these engines are invading a field heretofore reserved for the gasoline engine. The Diesel can operate on a wide range of fuels, from kerosene to heavy oils, and these engines are being built in small units for many purposes. The advantages of the Diesel are manifold: relative freedom from fire risk; great thermal efficiency; complete absence of carbon monoxide from the exhaust gases; simple operation—no magneto or coil, no spark plugs or carburetor; cheaper fuel which needs no refining or cracking, and a wide choice of fuels from light oils to heavy distillates.

"All this indicates," said Mr. Dunstan, "that the truck, the tractor and the bus of the near future will be operated by the compression and not by the gasoline engine. In Europe this situation is developing rapidly. I can foreshadow that none but the small and light automobiles will operate on gasoline. I know of cases where gasoline engines have been exchanged for high-speed compression engines, whilst the experience of our large bus companies has shown the definite superiority of the Diesel cycle."

The trend of these developments seems to show that oil refining of the future may go into reverse; a way has already been found for converting gaseous hydrocarbons into light oils. Perhaps in our time we shall see the cracking or reforming of light distillates into heavy distillate fuels to meet Diesel requirements.

No small part of the credit for the present high efficiency of automobile gasoline is due to the C.F.R. testing engine; it now remains to perfect a corresponding engine for testing Diesel fuels.

Dismantling Rotary Rigs

WHEN a well is finished in an active field the equipment is taken down and moved to a new location. The time required for this moving operation is non-productive and becomes a factor of major importance in large-scale developments. As a means of keeping down drilling costs in such development it is desirable to design the equipment with an eye to easy dismantling and to work out a schedule for moving. The engineers of the Humble Oil and Refining Company have worked out such a program for moving and reassembling; as described by J. U. Teague the average time required for moving rigs in the Conroe field was reduced from 4.98 days in September, 1932, to 2.5 days in April, 1933. This was achieved by standardization of hook-ups and transportation methods.

Marine Drilling

THIS PAPER, by L. B. Collins, J. C. Gilbert and J. H. Siemon of the Barnsdall Oil Company of Calif. is a historical survey of oil production from fields beyond the beach line. The various types of structures and the problems of marine drilling are interestingly discussed. The deepest producing marine well is bottomed at 3,686 ft.

Reconditioning Oil Wells

THE LACK of new flush fields for development in California, and the necessity for closer control of production costs has created a necessity for the reconditioning of old wells. By reconditioning is meant cleaning, excluding water, deepening, or repairs that will change the physical condition of the well. As described by W. C. Whaley of the Barnsdall Oil Company of California, these operations when applied to 32 wells raised the daily capacity from 12,856 bbl. to 18,434 bbl. per day. The indicated increase in ultimate production is estimated at 4,500,000 bbl. In addition to this increased recovery unit production costs have been lowered.

Phenol in the Production of Lubes

TREATMENT with anhydrous phenol offers a means of producing high-grade lubricating oils from widely varying types of stock, which may be of very high or very low viscosity index, narrow or wide cut, very clean or very dirty, heavy residual or light overhead cuts, waxy or dewaxed; it can be used in the manufacture of turbine, transformer or other special oils as well as motor and aviation oils. The commercial feasibility of the process has been demonstrated by three years' successful operation in a 2,000-bbl. plant, and the products have been well received in the Canadian markets. Detailed data are given in this paper by R. K. Stratford, O. S. Pokorny, and J. L. Huggett of the Imperial Oil Refineries, Sarina, Ont.

Duo-Sol Process of Solvent Extraction

IN THIS PAPER by Malcolm Tuttle and Max B. Miller of the Max B. Miller Company the advantages of the Duo-Sol process for manufacturing lubricants are set forth. This process involves the use of two solvents (not named) for treating the same crude. One of these solvents is selective for the paraffinic fraction, the other for the naphthenic fraction; the two solvents have such a limited mutual solubility that they of themselves form a two-layer system. One of the main advantages is that by separating the paraffinic from the naphthenic fractions the refiner may avoid processing costs on the fraction that goes into naphthenic oils; another is the avoidance of acid treatment; in general the treatment of residuals is more economical with two than with one solvent, except that installation costs are somewhat higher.

Chlorex Process for Producing Lubes

AS DEMONSTRATED by W. H. Balke, A. B. Brown and F. F. Diworky of the Standard Oil Company of Indiana, beta-beta-dichlorethyl ether (Chlorex) is a very selective solvent for production of high-grade lubricating oil. Aside from its selectivity its strong points are relatively low boiling point (353 deg. F.), very low vapor pressure at ordinary temperature, very low freezing point, high density and low viscosity. Three plants with a combined capacity of 1,400 bbl. daily are now operating with this process; all these plants work on the counter-current principle. Recovery is by steam distillation at atmospheric pressure. Data are given on operating requirements, from which unit costs may be figured; these costs in general should be low.

The Nitrobenzene Process

IN THIS PAPER S. W. Ferris, W. A. Myers and A. G. Peterkin of the Atlantic Refining Company discuss the installation and operating costs of the nitrobenzene process from the point of view of its application to a number of charge stocks covering a wide range of both viscosity and crude source, and they give an approximate estimate of a 1,000-bbl. charging plant. Operating costs are given, and yield and cost data are combined in curves showing variation of cost with variation of stock and quality of product.

Solvent Extraction with Furfural

FURFURAL, which is a product of the dry distillation of agricultural wastes such as corn cobs, oat hulls, etc., is found by R. E. Manly, B. Y. McCarty and H. H. Gross of The Texas Co. to answer the requirements put on a solvent for lubricating oil refining: low cost and availability, ease of application, high selectivity, stability and recoverability, wide temperature range of applicability, lack of toxicity, and adaptability to various lubricating stocks. Furfural is selective both on distillates and residuals, and furfural-refined motor oils are very resistant to sludging and carbon deposition. Refining costs are stated to be 1.5 cents per gallon, and plant investment approximately $200 per bbl. charge capacity.

Design of a Vapor-Phase Coil

IN A PAPER by H. C. Schutt of Alco Products, Inc., credit is given to the Gyro Process Company for having developed a vapor-phase cracking process of high commercial performance at a time when the main interest of the refining industry was still centered on liquid-phase cracking methods. Mr. Schutt reports tests on an experimental Gyro system, in which he evaluated the time-temperature factor, the re-cycle ratio, and the total reaction time. The investigation shows that in designing a high-temperature conversion furnace it is essential to investigate the heat-transfer and heat-intensity characteristics of the tube sections; criteria are given from which the yields from a commercial unit may be accurately predicted from test data.

Contact Sulphuric Acid from Sludge

REFINERIES are large users of sulphuric acid and every refiner is painfully conscious of the nuisances involved in the disposal of acid sludge. Old methods of acid recovery worked fairly well until the advent of cracked distillates requiring the use of stronger acid, which resulted in a sludge still more difficult to handle. No satisfactory method for recovery was available until the invention of the Hechenbleikner process, which is here described by S. F. Spangler of the Chemical Construction Corporation. In this process the sludge is slowly and continuously carbonized in a rotary furnace of such design that all the sulpur is recovered as SO_2, and after purification is converted into 98 percent acid. A 50-ton plant is now operating at Petrolia, Pa., by the W. H. Daugherty and Sons Refining Company.

Solvent Extraction

IN THIS PAPER John W. Poole and J. M. Wadsworth undertake to discuss solvent extraction for refinery executives and refinery chemists who ordinarily do not come into close contact with this department. Especial reference is made to the Foster-Wheeler process which employs mainly croton aldehyde, but in some cases acrolein. With this process distillates require no acid or clay treatment; residual oils require these aids, but in much reduced amounts over conventional practice. The Foster-Wheeler process is especially suitable for high sulphur oils, such as Mexican Tecomate. A flow sheet is given, showing the counter-current principle and the use of centrifugals for separating the homogeneous phases.

Scope of the Edeleanu Process

THE ORIGINAL Edeleanu process employed only liquid sulphur dioxide. This is still the case in the production of high-grade lubricants, but where special requirements have to be met a combination of sulphur dioxide and benzol can be used to advantage. As described by O. P. Cottrell of the Edeleanu Company this form of the process is characterized by great flexibility and with suitable equipment can be applied to a wide range of materials—from kerosenes to cylinder and bottom stocks.

Propane in Lube Refining

INVESTIGATIONS carried out in the laboratories of the Union Oil Company of California by Ulric B. Bray, Claude E. Swift and Donald E. Carr have indicated that liquid propane has several valuable applications in lubricating oil manufacture. These uses include de-asphaltizing asphaltic or mixed products, dewaxing residuals or distillates, as a diluent in acid and clay treatments, and in combination with selective refining solvents. One of the outstanding results of this investigation is that while propane alone cannot be used to make a separation of the aromatic, unsaturated and naphthenic lubricants from the paraffinic lubricants, if it is used with a selective solvent insoluble in propane a better control of quality can be obtained.

Servicing Motor Vehicles

THIS PAPER by J. F. Winchester of the Standard Oil Company of N. J. is a plea for design in motor vehicles that will make it easy to lubricate and service the vehicles. The paper indicts the automobile makers on a large number of counts for making servicing unnecessarily difficult, and it makes many concrete suggestions for improvement.

Automotive Fuels

THIS PAPER by J. B. Macauley, Jr. is a brief statement of what the designer of automotive engines wants in a motor fuel. First of all comes uniformity; volatility is the next important property of a fuel from a design standpoint. Although the oil industry has gone far in anti-knock quality, this is still an outstanding problem in the mind of the engine designer.

Motor-Oil Recommendations

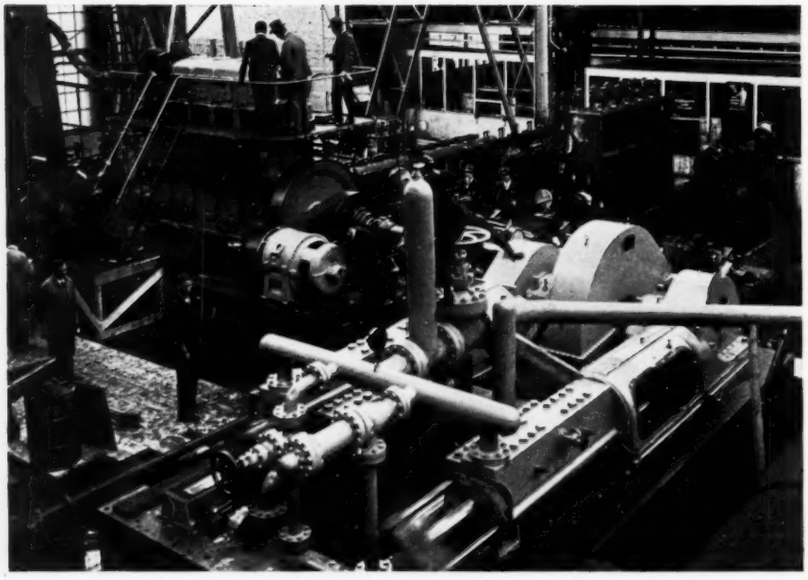
W. H. GRAVES of the Packard Motor Car Company points out that service station attendants are apt to supply automobile engines with heavier motor oils than are recommended by the automobile companies. To correct this tendency the Lubricating Division of the Society of Automotive Engineers has started a publicity campaign to deal particularly with cold-weather starting difficulties, and has suggested a table of oil recommendations for all cars at all temperatures. The feature of this table is the recommended use of much lighter oils, the lightest being 10-W plus 10 percent kerosene for temperatures below—15 deg. F., and the heaviest S.A.E.-30 for 32 deg. to 100 deg. F. Numerous pertinent facts in relation to cold-weather starting are given.

Automobiles and Petroleum

IN THE OPINION of A. Ludlow Clayden, of the Sun Oil Company, the automobile manufacturers create a lot of unnecessary trouble for the oil manufacturers without corresponding benefit to themselves. He cites the classic case of free wheeling, into which the automotive industry made an ill considered rush and compelled the oil trade to supply oils which the motorists refused to buy. Then there are automobile instruction books that call for 23 different kinds of lubricants, whereas at most service stations there will be found only one grease, one transmission oil and perhaps two motor oils. Mr. Clayden makes a strong and interesting plea for team work between the two industries in planning ahead for the adaptation of means to ends.

Chassis Lubrication

A SUB-COMMITTEE of the Society of Automotive Engineers, headed by H. C. Mougey of the General Motors Corporation, has been studying the problem of chassis lubrication. After consideration of a large number of suggestions the Committee has recommended five general classes of lubricants for this use: No. 100 Water Resistant for general use below 40 deg. F.; No. 200 Water Resistant for general use above 40 deg. F.; No. 300 Resistant to Separation (lower viscosity) for wheel bearings, universal joints, etc.; No. 4 Resistant to Separation (higher viscosity) for wheel bearings, etc.; No. 500 Resistant to Hot Water, for water pumps



Werkspoor Diesel engine connected to a Worthington pump during an official test. The unit is intended for the Iraq Petroleum Company's pipeline which will begin operations in 1934.

where the lubricant comes into contact with hot cooling liquid. The Committee frowns on the multiplicity of lubricants now offered for this work.

Corrosion Fatigue

BLAINE B. WESCOTT and C. Norman Bowers of the Gulf Research and Development Company reach the conclusion that the failure of sucker rods in wells making water are caused by corrosion fatigue. It is suggested that better service might result from field tests with sucker rods fabricated from low carbon alloy steels and alloy irons, particularly the nickel carburizing steel (S.A.E. 4615), steel containing approximately 0.12 percent carbon and 1.25 percent manganese; also low-carbon nickel manganese steels and ingot irons containing up to 3.50 percent nickel.

Soil-Corrosion Measurements

ABOUT 8,000 pit-depth measurements on specimens representing seven operating pipelines have been studied with reference to their significance as measures of soil corrosion. The quantitative relation between the average maximum depth of the pits, when taken in connection with the area of the sample of pipe, is taken as a measure of soil corrosion. To be of use such measurements should be sufficiently numerous and corrected to a standard area of 45.16 sq. ft., corresponding to a 20-ft. length of 8-in. pipe. This research was carried out by Gordon N. Scott of the Bureau of Standards.

Electrical Protection for Pipelines

ELECTRICAL protection of pipelines, as described in a paper by Starr Thayer of the United Gas System of Houston, Tex., is based on a theory that if a potential difference can be set up so that the potential of the pipe is sufficiently lower than that of the soil, the pipe will be protected from all corrosion agents. Experience in laboratory and field tests indicates that 0.3 volt difference is sufficient to stop corrosion. The method will not be economical, however, unless the pipes have been provided with a high-resistance coating such as coal-tar enamel, but is effective where such lines are found to need additional protection due to abrasions and imperfections in the coating. The power cost has been found to be about $17 or less per year per mile of 18-in. pipe. It is concluded that new lines or reconditioned old ones need never be taken up on account of corrosion.

Protective Coatings

THIS IS A report by F. N. Speller and I. B. McCorkle of the National Tube Company on work carried out under the metallurgical committee of the A. P. I. in the field of protective coatings. Tests have so far shown that paint films definitely increase the life of metal subject to corrosion fatigue if the paint is not too much broken. It is also concluded that the protective power of the coating is liable to be greatly diminished under cyclic strain.

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Imaginative Reports About Iraq Oil

LONDON, OCTOBER.

STATEMENTS regarding the oil development now under way in Iraq, which, if well founded, would be nothing short of sensational, recently appeared in one of the lesser financial journals published here. This article stated that the marketing of oil from the Kirkuk field would be deferred much beyond the time originally set and that the oil obtained from the wells thus far drilled had such a high sulphur content that it could not be treated commercially.

While the Iraq Petroleum Company has given no heed to these assertions information from thoroughly reliable sources indicates that the charges are without substantial foundation. Progress on the 1,150-mile double pipeline extending from Kirkuk to Haifa and Tripoli on the Mediterranean actually is proceeding ahead of schedule and from present indications the line will be completed in time for the company to begin production by September of next year. At present, the prospect is that the company will be able to begin the movement of oil earlier than was originally anticipated although, as a matter of fact, no specific date for the opening of the line ever has been announced.

Presence of a certain content of sulphur in the oil obtained from wells in the Kirkuk district is not in dispute. Sulphur, in fact, is contained in oil produced in many parts of the world but this has not interfered with its commercial treatment. The fact is that the largest oil groups in Europe and America are directly interested in the Iraq development. They have at their command men of the highest ability in all branches of the industry—production, transportation and refining. It is certain that they would not have invested some £10,000,000 in this enterprise and have built one of the longest and most expensive pipeline systems ever constructed merely to produce oil not capable of being used commercially.

While alarmist predictions have been made from time to time as to the possible effect of Iraq oil on the European marketing situation a point overlooked in these reports is that the interests constituting the Iraq Petroleum Company are large enough to handle this additional supply without disrupting the European market.

Organization of British Petrol Market

Great Britain, Second Only to The United States as a Market for Motor Fuel, Has Two Main Difficulties to Contend With, as Described in the Accompanying Analysis by Alec H. Day.

AN ANALYSIS of the British motor fuel market indicates that Great Britain, as the world's second most important market for petrol, faces two serious problems: overtaxation, which, as in many other countries, threatens to hamper seriously the growth of the trade, and the competition of small, irresponsible, distributing units which enter the market with a supply of doubtful petrol at cut prices only when the difference between world prices and British prices guarantees a profit.

The importance of the British petroleum industry may be seen from the fact that it is expected during the current financial year to provide the national exchequer with £37,750,000 in customs and excise revenue, to furnish an immense amount of direct employment, and to give valuable support to other home industries.

British imports of petroleum products were valued at £32,000,000 in 1932, and although their value had declined by approximately £12,000,000 during the preceding three years, this was due entirely to a reduction in the general price level, the volume of imports having increased over that period.

Reductions in prices, however, have been accompanied by increasing tax demands on the part of the government. While, between 1929 and 1932, the value of oil imports declined, taxation provided by the oil industry increased from £15,000,000 per annum to £34,000,000. The tendency in Britain, as elsewhere, is to kill the oil business by overtaxing it.

British Consumption of Motor Spirit.

	(Barrels) 1930	1931	1932
Imports*	25,420,000	24,243,000	26,366,000
Home production	4,240,000	4,271,000	3,577,000
Total apparent consumption	29,660,000	28,514,000	29,943,000
Percentage of home production to total	14.3	15.0	11.9

*Re-exports and imports submitted to further refining have been eliminated.

Gasoline accounted for just over 50 percent of the total of petroleum derivatives supplied to the British market in 1932, and distributors are mainly organized for selling this product.

Imports are brought in through nearly 30 coastal installations of varying size and importance. After treatment, where necessary, gasoline is transported from these centers to inland distributing depots by road tankcar, rail tankwaggon, barge or coastwise tanker.

Percentages of Total Oil Moved by Types of Transport.

	Percentage of total	Capacity of transport unit (Tons)
Road	15–20	8–10
Rail	60–70	8–20
Water	15–20	25–250

Bulk distributing depots number something like 1,500, of which considerably more than half are controlled by Shell-Mex and B. P. Ltd., and the Anglo-American Oil Company—the two principal distributors. Under the necessity of curtailing costs to meet competition, these two organizations have greatly decreased the number of their depots during recent years, and the reduction is continuing. This movement is thoroughly desirable, since it must tend in the long run to reduce the cost of petrol to the ultimate consumer without impairing the efficiency of the service.

By far the largest economy in depot costs was accomplished when Shell-Mex and B. P. Ltd. was formed, representing a fusion of the British marketing undertakings of the Royal Dutch-Shell group and the Anglo-Persian Oil Company.

From 90 to 95 percent of the popular brands of motor spirit is now delivered in bulk for final sale through pumps, cans accounting for little more than five percent of the total trade. The oil companies estimate that cans are still disappearing from use at the rate of about 15 percent per annum. They are now found principally on racing tracks and aviation fields, where special brands of gasoline are used, and in the centers of big cities, such as London, where severe restrictions are imposed on the installation of pumps. These restrictions appear unnecessarily stringent and oppressive in view of present-day storage methods, for, as is proved by the results of many recent garage fires, the underground tank carries far less danger than the can as a storage vessel for gasoline.

In order to bring the sales price of gasoline into some relation to distribution costs, the larger companies, for price fixing purposes, divide the whole country into "zones," covering inner London; outer London; the rest of England and Wales and Southern Scotland; and North Scotland. The smaller companies, operating under the disadvantage of a re-

The largest lubricating oil refinery in the United Kingdom manufacturing Pratts products; published through courtesy of Anglo-American Oil Co. Ltd.

stricted total turnover, tend to concentrate their attention on districts where distribution is relatively cheap, and particularly on main roads in those districts, and are thus sometimes able to attract business through local price variations within one or another of the price zones.

For administrative purposes, the big oil undertakings also have a divisional system. This system, however, is not related to the price zones. The divisional manager, who has a clerical and technical staff at his disposal, is directly responsible to the appropriate controller at the company's head office. Working under the divisional manager are the depot superintendents, who in addition to supervising distribution, act as salesmen, watching for fresh outlets and establishing contact with prospective customers. Deliverymen attached to the depot also act as canvassers and salesmen, always on the lookout for new business.

In addition to making every effort to attract new customers by personal contact, the British petrol distributing companies aid their business to a large extent by press and other advertisements.

Statistics recently compiled suggest that nearly £300,000 was spent in press advertising of motor spirit alone, by British oil distributors last year. Of this total, about 57 percent was spent on displays in the "national" newspapers, rather more than 25 percent in the provincial papers, and the balance among technical, trade and social magazines.

In addition to their outlay on press publicity for motor spirit, the large oil distributors spend considerable sums on advertising other products. All their products are also brought to the notice of the public by poster advertising and by brochures and other literature.

Purchasers of gasoline from the oil companies fall into two main groups—the retailer, operating a filling-station, garage or repair shop, and the commercial consumer. Commercial consumption represents about 60 percent of the motor spirit sold in Great Britain, private car owners taking about 40 percent. Something like 20 percent of total sales is done by contract, practically the whole of it being with commercial users. Smaller commercial consumers are often discouraged by the larger oil companies from buying direct in view of the relatively heavy cost of supplying small quantities in bulk. The installation of pumps on the premises of the commercial buyer of petrol, for his exclusive use, has been a growing practice in recent years.

Contract business, although subject to the keenest competition, and therefore often arranged at cutthroat prices, presents little difficulty for the oil companies as far as actual delivery is concerned. It usually permits advance arrangements for delivery to be made from an ocean intake or through an inland depot, according to the size of the order and the facilities available.

Unlike many other countries, retail gasoline distribution in Britain is almost entirely in the hands of single individuals and small partnerships. There is no direct control either by the government or the oil companies. One of the few exceptions to this rule is furnished by the chain of stations in the London area, owned by the Anglo-American, and devoted to the sale of commercial spirit.

There is no statutory restriction on the setting up of petrol stations, a permit from the local authority being the only formality required before starting business as a retail distributor of oil products. About 30,000 retail distributing concerns are in existence, operating some 80,000 pumps, exclusive of pumps on the premises of commercial consumers for their own use. The foregoing figures show plainly that the retail side of the gasoline business in Britain is overdeveloped to an appalling extent. It is quite out of proportion to the size and needs of the population, and its excessive personnel, while seriously reducing the trade available for each individual distributor, imposes on the oil companies the provision of organizations which would not otherwise be necessary.

Courtesy S. F. Bowser & Co. Ltd.

Modern omnibus garage in north of Eng land wi represent important customers of petro leum d

Assuming an annual consumption in Britain of roughly 1,000,000,000 gallons per annum, the following figures can be produced as illustrating the excessive number of retailers:

Apparent consumption	1,000,000,000 gal.
Approximately one half sold through retailers' pumps	500,000,000 gal.
Average turnover of 30,000 dealers	16,666 gal.
Profit per dealer at average margin of 2d. per gallon	£138.

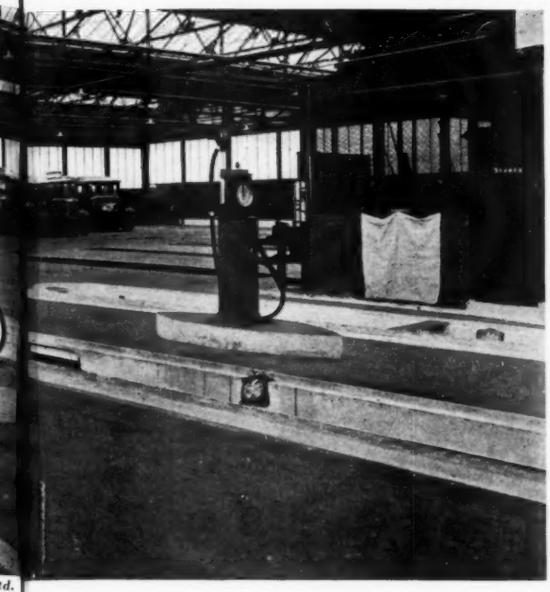
In view of the fact that some retailers work on a big scale, and thus handle far more than the average gallonage, many of the smaller operators must find their business hardly worth while after paying overhead expenses.

Although the petrol distributing companies have always been ready to get customers by providing easy payment terms for pump and tank installations, it does not follow that their action in this respect has been a major factor in the overdevelopment of the retail distributive market. Makers of plant themselves are generally willing to sell on some sort of instalment plan, and financial facilities for new plant are also available from other quarters.

While the oil companies may not have contributed largely, by their policy, to the

South of England rural service station: neatness typical of the better class of service stations in England is noticeable.

Courtesy S. F. Bowser & Co. Ltd.



land with petrol pumps. Bus companies leum distributing companies in England.

excessive increase in the number of petrol stations, circumstances have prevented their putting any check on the growth. Competition is keen, and each company has been far too intent on maintaining its own sales and pump representation to initiate restrictive measures, even if such were possible. Fortunately, economic influences have already been at work on the retail end of the gasoline business. The obviously unremunerative nature of the business of many filling stations has brought about a slackening in the increase in their numbers during the past year or so, and the expansion has now practically ceased.

Well organized as the British gasoline market undoubtedly is at the bulk distribution end, it has some serious drawbacks. Trading for the big distributors would be greatly improved if certain deficiencies could be removed.

One of these deficiencies is excessive taxation, to which reference has already been made. Another is the result of the operations of the casual or "pirate" distributor, working with no trade name to maintain, and no responsibilities to fulfil.

Operations of the pirate type originate with a purchase of a portion of one of the casual cargoes of motor spirit which reach Great Britain. The cargoes are almost invariably consigned to a broker or agent, who places the gasoline in public storage and sells it as he can. The pirate distributor, if he can see a margin between the price at which the spirit is offered and the price at which he knows he can sell it to retailers, will hire road tank cars and send men out to hawk the spirit on commission to retailers. He has to make allowance for the fact that he must sell at a cut price, but apart from this he operates under many advantages, including the following:

(1) He need employ practically no fixed capital in his trade.

(2) He figures out his profit in advance, only buying when he knows a margin above overheads is certain.

(3) He is able to concentrate exclusively on marketing fields where transport costs are low.

(4) He does not attempt to maintain any consistent supply to customers. If a rise in world oil values or a cut in British prices renders his business unprofitable, he simply retires from that line until conditions are again propitious.

Up to a point, the operations of the small casual bulk distributor are nothing more than an annoyance to the established gasoline companies. Aggregate sales of the pirate class appear very small in comparison with the turnover of the big concerns. This, however, ceases to be the case if the margin between world prices and the British price level remains wide for any length of time. Between September 1932 and May 1933, for example, when the American price level was about at its worst, and first grade spirit sold at the relatively high price of 1s. 7½d. per gallon in the British market, pirate distributors, finding their business profitable, appeared to be extending their operations to an extent which became a definitely weakening influence in the British price structure.

From the foregoing it is evident that the casual independent distributors form an economic link between the British and world markets. But this does not necessarily mean that they are performing a useful economic function in keeping British prices adjusted to world conditions.

The charges of the regular distributors cover many important benefits to the ultimate consumer, including excellent delivery services to retailers and a continuous supply of spirit of uniform properties and constant high quality. Spirit sold by the occasional operator is not necessarily inferior, but it is far from being uniform. It has no reputation to maintain, and its quality is determined largely by chance.

The problem of dealing with the pirate distributor is an extremely difficult one for the regular distributing companies. Under conditions of free marketing, any attempt at arrangement or absorption appears out of the question, since the disappearance of existing pirates would merely leave room for newcomers in that line.

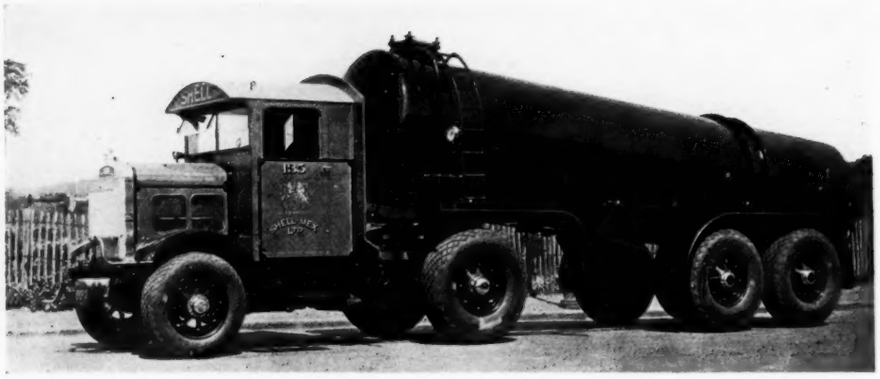
Adjustment of price zones to conform more closely with transport costs and marketing conditions appears equally difficult. If this could be done, it might enable the established companies to compete with the pirates on more even ground. But if price zones were made smaller they would create hardship for a number of retailers, now selling well-known brands, who would find themselves on the outer edge of a cheap zone, offering spirit at a higher price than that within it. Motorists would soon learn to go an extra mile or so to get cheaper filling, and the garages just over the border of each zone would lose their business.

Obviously, they would not go out of business altogether, but would turn their attention to selling pirate products. This method, therefore, might well increase the evil it was designed to cure.

Trouble taken in the direction of solving this problem would be well repaid. The British market is heavily taxed, and may appear for the moment to be fully exploited. But it is showing a ready response to improvement in general trade conditions, and has throughout the pronounced depression in the oil industry been immune from the complete demoralization existing elsewhere.

Pratts Service Station at Gunnersbury, London, whence the products of Anglo American are distributed.

Courtesy Anglo American Oil Co. Ltd.



Scammel articulated, eight-wheel, 2,556 gal. tank truck operating in Great Britain: Constant improvement has increased the radius of the area served by truck.

Combating British Coal Propaganda

EXISTING competitive relations between petroleum and coal in the British market provided the principal subject for the speech delivered by Sir Arnold T. Wilson at the fifteenth annual dinner of the Institution of Petroleum Technologists, held in London on October 6.

Sir Arnold, who was recently elected to Parliament, is managing-director of the D'Arcy Exploration Company, an Anglo-Persian subsidiary. In proposing the toast of the Institution, he described the encouragement given by the British government to the production of motor spirit from indigenous coal as a 250 percent ad valorem tariff, which acted to the detriment of petroleum.

The competitors of petroleum in the coal trade, were tireless in their presentation of statistics, by which, he said, they contrived to prove almost everything. "One knows," said Sir Arnold, "precisely what they are doing—what wages they pay, what is the value of the coal exported, and the precise number of miners out of employment. But when one turns to study the petroleum industry from the point of view of national economics, one is confronted with an almost complete lack of authoritative, objective figures."

It is very necessary to maintain a sense of proportion, he continued. Personally he was not one of those who sympathized with the prevailing view that all imports are bad and all exports amazingly good. A balance of common sense and utility are equally necessary to a balance of trade.

There was a tendency, said Sir Arnold, on the part of their opponents to ignore these factors, and it would be worth while to enlighten the British public. He believed that more attention should be paid to the production of figures on the economic side of the industry, so that the general public might realize its advantages to Britain.

Discussing the future of British trade, on which the fortunes of petroleum distributors depend, Sir Arnold expressed the view that the doctrine of "national self-sufficiency" was in its essence a sound doctrine, and must be adopted as far as possible in Britain, since it was accepted by the rest of the world. He believed that they were on the threshold of a great revival of British trade, and read several interesting quotations to show how faith in the future of the country had been justified in the past.

T. Dewhurst, the President, replying to the toast, dealt principally with the progress of the Institution. The rate of progress, he said, had been maintained and even accelerated, during the past year. Mr. Dewhurst said that nothing but good could come from the meeting and exchanging of views with foreign technologists at the World Petroleum Congress, which had been the event of the year. From all the evidence, he said the Congress had been a complete success.

Other speakers were Engineer Vice-Admiral H. A. Brown, C.B. of the British Navy, Sir Basil Kemball-Cook, managing-director, British Tanker Company (Anglo-Persian), J. McConnell Sanders and Herbert G. Williams, M.P.

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Front Cover

THE FRONT cover picture on this month's issue of WORLD PETROLEUM, published by the courtesy of Lincoln Electric Company, brings into bold relief the striking contrast in Iraq between ancient methods of transportation by camel and the modern 4,000,000 ton yearly capacity pipeline in the foreground.

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French Tax Opposition

OPPOSITION to the proposed French surtax on motor fuel was expressed by hundreds of taxi drivers during the night of October 23 when taxis from all over Paris assembled on the Place de l'Opera, deliberately blocking traffic and keeping up an incessant din by constantly blowing their horns. The French cabinet failed to obtain the necessary support and was forced out, leaving the matter of additional gasoline taxes in abeyance temporarily.

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HAIFA HARBOR was opened formally at noon on October 31 by His Excellency the High Commissioner of Palestine at a ceremony to which some 500 guests had been invited. Many of the guests took luncheon with the High Commissioner after the ceremony. The harbor is the terminus of one branch of the Iraq Petroleum Company's pipeline from Kirkuk, Iraq.

A large filling station of modern design at Olympia, London. Courtesy S. F. Bowser & Co., Ltd.

Contact Neutralization Effects Economies

Vacuum's Paulsboro Plant Using Contact Neutralization Principle, Neutralizes and Decolorizes in Single Continuous Operation, Yielding High Quality Lube Oil at Reduced Operating Cost.

THE CONTACT neutralization unit built at the Paulsboro refinery of the Vacuum Oil Company by Max B. Miller and Company, Inc., New York, and used to neutralize and partially decolorize certain lubricating oil stocks, contains modifications and improvements which allow maximum operating economy and yield a higher grade of lubricating oil than has been attained since the contact process came into general use.

The contact process is essentially one of mixing a predetermined amount of oil and fine clay together at a temperature sufficiently high to permit thorough and uniform mixing. After mixing, the oil and clay is heated to a temperature sufficient to obtain maximum efficiency from the clay without causing decomposition of the oil. Precaution is necessary to permit the escape of moisture from the system during contacting. After contacting the clay is removed from the oil by filtration and a finished oil of the desired specification is the result.

Whenever possible, oils are treated with sulphuric acid before being brought into contact with clay for the partial removal of resins and asphaltic substances, it having been found that acid treatment is more economical for the removal of these objectionable substances than the use of clay alone. The contact process allows the treatment of the acid-treated, or sour oils, mixed with the clay without previous neutralization as is necessary in the percolation system. Actually there is an advantage to be gained in adding the clay to the sour oil as the acid constituents are readily absorbed by the clay thereby eliminating the danger of forming the objectionable soaps which are so often the cause of emulsion troubles where caustic or ammonia neutralization is employed.

The Vacuum Oil Company has found, since the installation of the contact unit, that when considering increased yields, the decreased labor costs for operation, and the decrease in cost for commodities such as clay, naphtha, steam, and water, that there is a saving of at least six percent in operating costs over their percolation system of manufacture of these same lubricating stocks. The unit not only shows a saving in operating costs, it produces a superior stock when considering such important factors as demulsibility, decolorization, color stability, neutralization value, and carbon residue. By way of comparison between the contact plant as against the old method the advantages of contacting, set forth in the accompanying tabulation, should be borne in mind.

Advantages of Contact Plant

1. Large throughput with a minimum of equipment and space.
2. Ability of the process to neutralize and decolorize sour oils, all in one operation.
3. Continuous operation throughout the plant, that is, from the time acid, oil and clay are charged into the mixing tank until the finished, filtered, contacted oil is transferred to the dewaxing plant.
4. The adaptability of the contact process to quick and easy starting and shutting down.
5. Reduced operating costs.
6. Increased yields of higher specification stock.

The Vacuum Oil Company unit contains many individual operations which are notable improvements over any installations that have been made previously. The flow of oil and clay through the plant is continuous throughout. The sour oil and clay are fed in exact proportions to the mixing tank and continuously discharged therefrom to the contact system at a controlled rate. For economy in manufacture, a natural clay was selected for neutralizing and decolorizing the sour oil. It was found that the efficiency of the clay was greatly increased if the mixtures were heated to high temperatures. Heating to a temperature of 675 deg. F. allowed the use of less clay to obtain the required results and showed a saving not only in clay but in oil losses, power, and plant maintenance. In designing for higher temperatures, heat exchangers were installed for the utilization of the heat after contacting was completed and provision was made for partial removal of moisture contained in the clay and condensable and non-condensable gases in the oil before heating to full contact temperatures, and the final removal of the remaining moisture and gases after the mixture had been fully contact treated.

A completely new departure from standard practice is the manner in which the spent clay is handled in the filters and removed from the plant. After the filtering operation, instead of dumping the cake from the presses in the usual manner, the filter press is kept closed and the cake is sluiced from the leaves with filtering naphtha. The clay and naphtha sluiced from the press flows to a tank for transfer to the naphtha recovery system later described. In line with this manner of handling the clay, a further improvement in spent clay handling is the manner in which the clay is removed from the system after all contained naphtha has been recovered. The naphtha being recovered in vacuum drying apparatus, the clay is sluiced with water to any designated location. This system being fully closed at all times, the danger of fire around the filters is greatly reduced and a substantial saving is shown in naphtha consumption.

The contact neutralization unit is equipped throughout with the latest type of temperature control equipment and all handling equipment is so installed that the time of contact, which is important when operating at high temperatures, is under close control at all times.

A description of the flow through the plant follows:

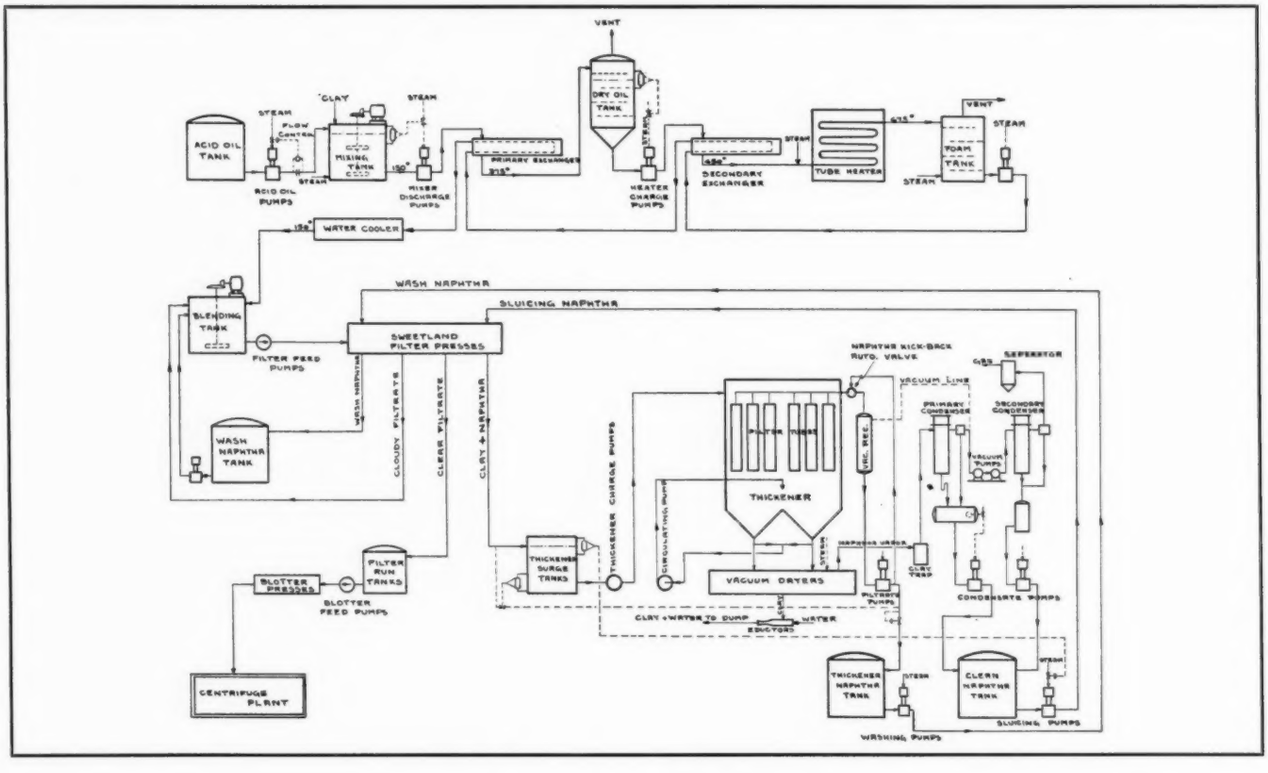
The contact neutralization unit at the Paulsboro refinery of the Vacuum Oil Company is continuous throughout. The sour oil is charged from the acid oil storage tanks to a mixing tank at a controlled rate. The correct weight of clay is fed continuously into the mixing tank and the mixture is agitated at a temperature of 150 deg. F. This temperature has been found to be sufficient to reduce the viscosity of the oil in order to obtain a thoroughly uniform mixture of oil and clay in the time allotted in the mixing tank. The mixing tank level is maintained by continuously withdrawing oil and clay mixture therefrom and discharging through heat exchangers into a dry oil tank. A temperature of 375 deg. F. is maintained in this tank, the oil and clay mixture being heated from 150 deg. F. to 375 deg. F. primarily by heat exchange. A small amount of steam is fed into the dry oil tank through the body of the oil and in

this manner a considerable quantity of objectionable acid compounds are removed from the oil. The major portion of moisture contained in the clay is also removed at this stage. The dry oil tank does not produce a contacted oil but serves to remove the major portion of the moisture from the clay and objectionable acid materials from the oil before a temperature has been reached at which the clay can exert its greatest adsorptive powers.

The oil and clay mixture is continuously withdrawn from the dry oil tank, first by means of heat exchangers where the temperature is brought to 450 deg. F. and finally by means of a continuous tube heater where the temperature is brought to 675 deg. F. The tube heater is discharged directly to a foam tank where the complete removal of water from the clay and objectionable gases from the oil is accomplished. The water is flashed off upon being discharged into the foam tank in which it falls through several horizontal screens. A small amount of steam is fed into this foam tank for assisting in the removal of objectionable gases from the oil. To limit possible decomposition or oxidation to a minimum and to avoid the possibility of any loss of color through oxidation, the temperature of the hot oil which has been flashed into the foam tank must be reduced in the shortest possible time. This is economically accomplished by maintaining a closed system and using the hot oil through heat exchangers transferring heat to the cooler incoming oil and finally, if necessary, through a water cooler. Throughout the entire unit during the time that the oil and clay mixture has been exposed to high temperatures, a completely closed system, with the exception of the foam tank, is used. In the foam tank a protective blanket of steam is provided to prevent the hot oil from coming in contact with air.

For the filtration of the stock a blend is made continuously with naphtha being fed into the oil line as the oil is discharged from the cooler. Feeding the naphtha into this line gives a partial mix and the final mixing is done in a mechanically agitated tank which is also operated continuously and at temperatures as high as the naphtha will permit without loss or hazard. The temperature in this tank is maintained at 150 deg. F. to 160 deg. F. The naphtha used for this dilution is the same as has been used for washing filter cakes on previous filter cycle and carries a percentage of oil which has been washed from filter cake. The filter cycle is divided into four periods: (a) cloudy filtrate period; (b) clear filtrate period; (c) washing period; and (d) sluicing period. A new cycle follows the sluicing period. The period of cloudy filtrate constitutes that time during which a cake is being started on the leaves of a previously sluiced filter press. It is of about five minutes duration and the oil discharged during this period is returned to the blending tank for refiltration. The clear filtrate period is that time in which a satisfactory cake has been formed on the leaves of the press, the clay deposit becoming a filter medium and the filtered oil is being fed to the filter rundown tanks. This period is of varying duration, depending upon the amount of clay which has been mixed with the oil.

When the cake has become of maximum thickness, the washing period begins. The washing is continued until the naphtha leaving the press is equal in color to that of the entering naphtha. Sluicing naphtha from a previous cycle is used for washing the filter cake. During the sluicing period, clean naphtha is forced through small rotating nozzles at a pressure of 150 to 160 lbs. per sq. in. The nozzle streams slowly sweep over each leaf cutting the adhering cake from the leaves. The naphtha and the sluiced cake are washed out from the bottom outlets of the filter into a run tank. This period is of about five minutes duration and upon completion the filter press is ready for a new filtering cycle. In order to remove the last traces of fine clay, the oil is pumped from the filter rundown tanks through blotter presses and the brightened



Contact neutralization plant of the Vacuum Oil Company at Paulsboro, N. J.

oil discharged to the blotter press rundown tanks. From the blotter press rundown tanks the oil is transferred to the centrifuge plant for dewaxing. This completes the oil cycle through the plant.

Filtering in this case is carried on in solution and the cake sluiced from the presses as described above. In order to recover all of the naphtha possible before the clay is discarded, the naphtha recovery system described below is employed. Essentially this work is accomplished by means of a thickener and a dryer.

The thickener is of the bag filter type consisting of a series of cloth sleeves in an enclosed tank. Naphtha from the sluicing mixture is drawn through the sleeves periodically, allowing the clay to build up on the outside surface of the sleeves. After approximately three minutes suction period a low naphtha pressure is released through an automatic valve reversing the flow of naphtha. The pressure used for this purpose is sufficient only to force the clay deposit to drop from the sleeves, preparing for another suction period which follows. In this manner a naphtha-clay mixture of approximately 75 percent naphtha entering the thickener is concentrated to a 40 percent naphtha mixture. This thickener reduces the amount of naphtha which would have to be evaporated from the drying operation which follows. The naphtha recovered from the thickening operation is later employed in washing filter cake on later cycles.

When discharged from the thickener, the clay is dropped into dryers which consist of horizontal steam jacketed shells having scrapers installed inside which revolve slowly. During the drying operation the naphtha is removed from the clay and condensed through suitable condensers, passed into a clean naphtha tank whence it is returned to the filter presses for sluicing on later cycles.

At the beginning of the drying operation, atmospheric pressure is employed and this is followed by a gradual decrease of pressure until at the end of the drying cycle the dryer is operating at a vacuum of 25 to 27 inches of mercury. In this manner the naphtha content of the clay at the end of the drying cycle is reduced to the lowest possible point, or approximately 2.5 percent.

When the dryer charge has had all possible naphtha removed, the dried clay is dropped into a hopper and carried to a clay dump by means of a jet using waste water from condensers and coolers as a carrying medium.

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Combination Units Facilitate Refining

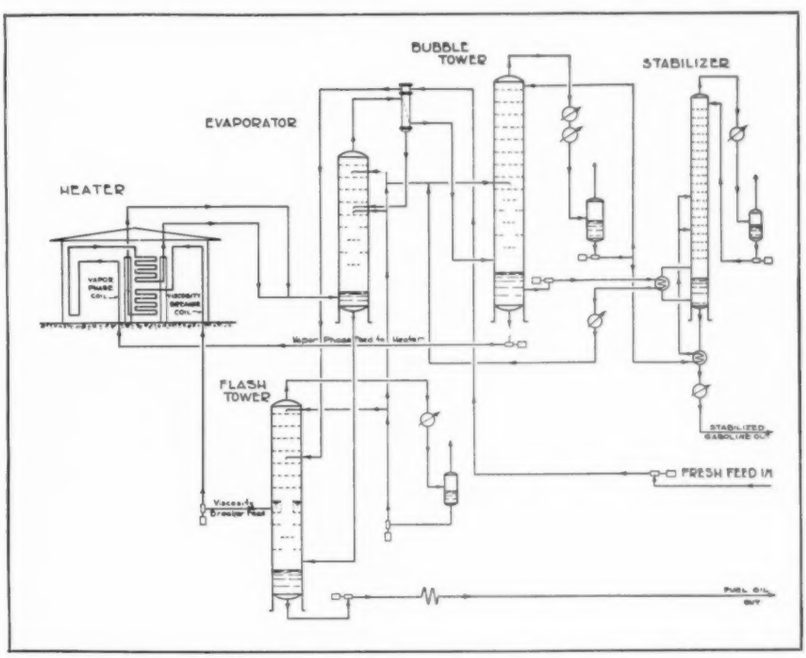
George Armistead Jr., Chemical Engineer of Gasoline Products Company, Describes Economy and Other Advantages of Associating Several Functions With the Cracking Operation.

PROMINENT among the recent developments in refining practice has been the trend toward the close association of cracking with a variety of other operations. Out of this trend the individual type of unitary operation termed "Combination" has been evolved. With its merits now well established by use, the combination process is appearing with increasing frequency in current construction and is recognizably assuming major importance among refining methods. Its advent is of general significance in marking a definite departure from the long-practiced segregation of the individual cracking and distillation operations.

The term "Combination" is applied to the association of such functions as initial distillation of crude, viscosity breaking, and naphtha reforming, with the main cracking operation, in self-contained systems. Usually it involves also the production of ultimate yields of final products. The refiner of today thus has available the facilities for carrying out the processing of crude oil to completion, including cracking, in a unitary operation. Foremost of the advantages he may realize through this source are the conservation of waste heat from the cracking system, reduced labor and investment requirements per unit of fresh feed capacity, the reduced handling of intermediate products, and maximum yields of high anti-knock gasoline. The importance of these, both in the erection of completely new plants, and in supplementing existing capacity, explains the increasing adoption of combination operations by the industry.

The advent, and present advanced state of combination operations, reflect the

Fig. 1: Combination unit employing vapor phase cracking and viscosity breaking for residual stocks.



achievements in fundamental research and process development work within recent years. While the advantage of associating other functions with cracking has long been recognized, the prevailing methods and the lack of knowledge of fundamentals were factors of restriction for many years. These limiting conditions restricted the combinations to elementary forms such as effecting crude topping, steam generation, and similar operations, with the waste heat of cracking systems. Indeed, the long-existing size limitations of cracking systems, and the lack of precise design data practically excluded more advanced combinations, and favored complete separation of individual operations.

Eventually, it was development work, enlarged in scope, which proved the practical possibility of combination design. Laboratories whose equipment included pilot plants, duplicating in miniature the operating conditions of the refinery, enabled research to determine the fundamental factors and to establish their inter-related values and effects in terms of plant operation. From development work came many advances including primary cracking or viscosity breaking which was affiliated with the main cracking operation, pressure tar flashing, and naphtha reforming. The development of redistilled circulation, wherein a clean heater feed is prepared by distillation in the cracking fractionation system, greatly facilitated the progress, in allowing much higher temperatures and cracking rates to be employed, and increasing the operating range of cracking operation.

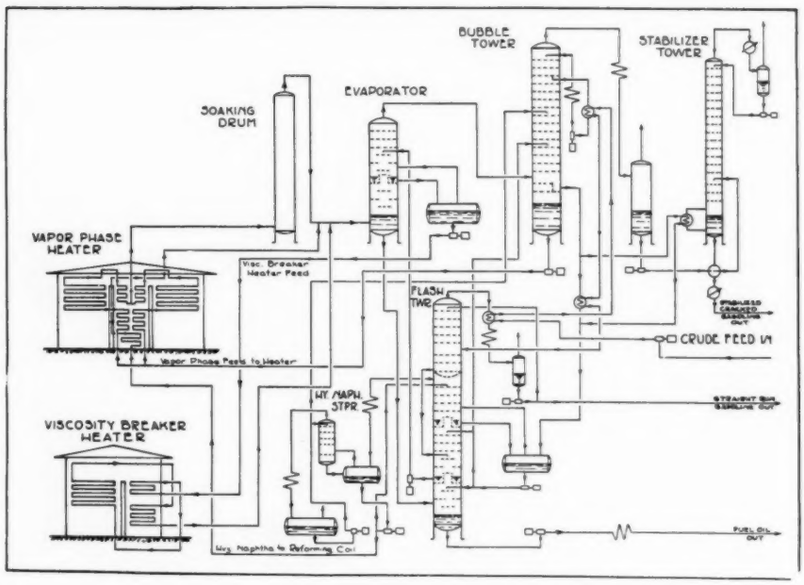
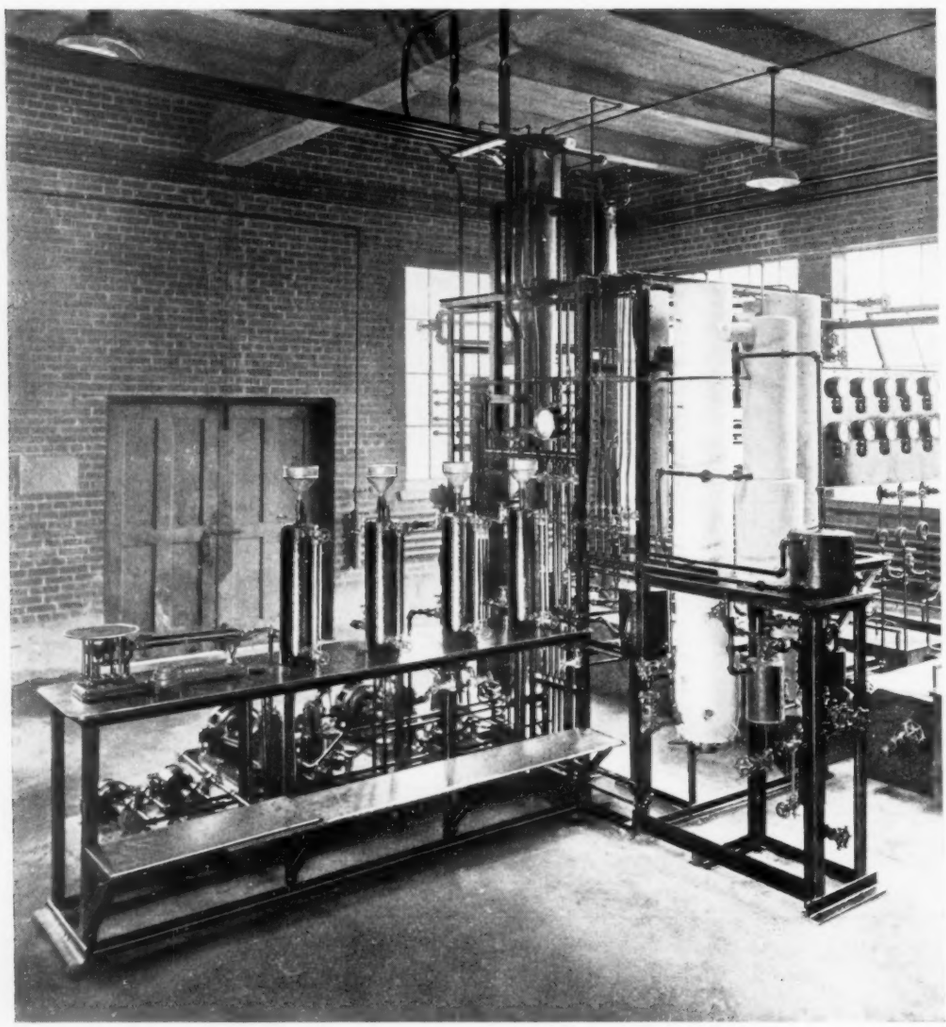


Fig. II: Combination unit for crude feed providing preliminary distillation, naphtha reforming and cracking to completion.



Pilot plant for combination unit: for experimental purposes this plant duplicates operating conditions.

In addition to means of applying laboratory results precisely to equipment of commercial size, the research and development work, responsible for this progress, yielded fundamental operation and design data which were valuable. In respect to the complex combination systems, this satisfied an important requirement, in the degree to which precise design is required to furnish adequate capacity and flexibility of inter-related parts, without resort to the use of inordinate safety factors. The design of each unit is a separate problem defined by the processing requirements and the raw stock. Accordingly, it has been indispensable that optimum operating methods and design, developed on laboratory or semi-plant scale equipment, be applicable with accuracy to the commercial design. To this end, the research has embraced the field from development of fundamentals to extensive correlations of the small-scale and plant equipment. The results achieved are reflected in the commercial installations, now in use, whose actual performance has duplicated within almost negligible limits the performance for which they were designed. Finally the flexibility necessary for optimum operation has been secured, without material over-capacity of individual parts.

Consideration of representative types of combination operation is properly introduced by an example of one of the

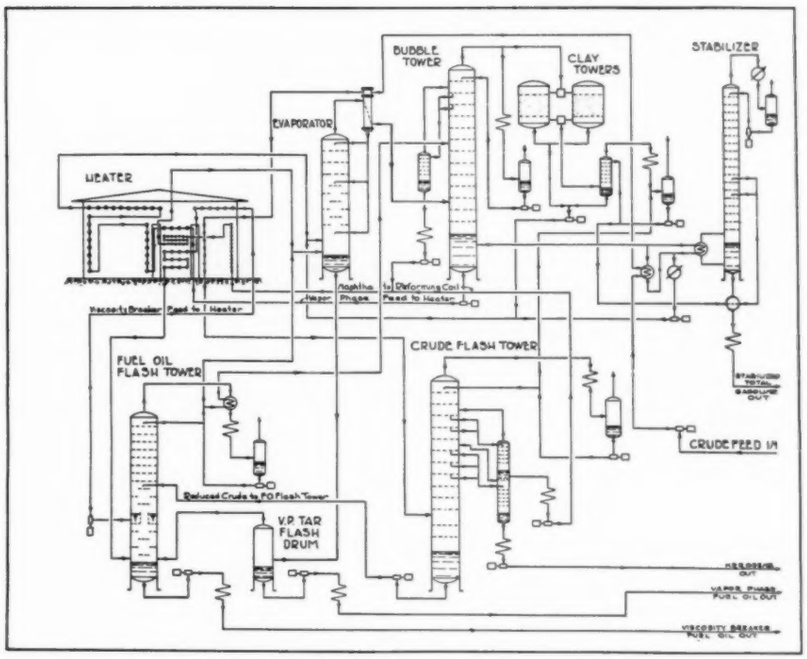


Fig. III: Combination unit for crude feed producing ultimate yields of products direct and employing a single heater and a cycle somewhat modified from Fig. II.

simpler forms, designed for the handling of reduced crude, as recently erected by The M. W. Kellogg Company for a Mid-Continent refiner. A diagram of this type of installation is presented in Figure I. Generally, the operations comprise primary cracking, vapor phase cracking, fuel oil flashing and naphtha stabilization.

Fresh reduced crude feed is introduced to the fuel flash tower to be preheated with hot flashed vapors, and is collected on a trap-tray, with included heavy condensate, to be passed through the primary cracking section of the heater which discharges into the high pressure evaporator. The feed for the vapor phase section of the heater is taken from the base of the bubble tower, the boiling range of this stock being regulated by the temperature of the evaporator top, so as to exclude high boiling fractions unsuitable for the vapor phase temperatures. After passing through its section of the heater, and attaining a temperature of about 960 deg., the vapor phase cracked stream emerges to join the discharge from the primary cracking coil and enter the evaporator. The composite fuel oil in the evaporator, under about 200 lbs. pressure, is released to the fuel oil flash tower, under low pressure, where it is reduced down to the desired viscosity and the evolved cycle stock vapors are returned to the cracking system. The stabilizer operates as an integral part of the system using recycle gas oil reflux as the source of heat.

It will be noted that the heater is of the dual combustion chamber type, separate radiant sections being provided for the two streams, to facilitate control of radiant heat absorption, although both are served by a common convection zone. This arrangement affords the flexibility of two individual furnaces, yet permits the advantageous use of the convection surface and confines the total surface within a single setting.

Fresh Feed

Mid-Continent Reduced Crude, 23.2 deg. A. P. I., Comprising 60–65 percent of Original Crude

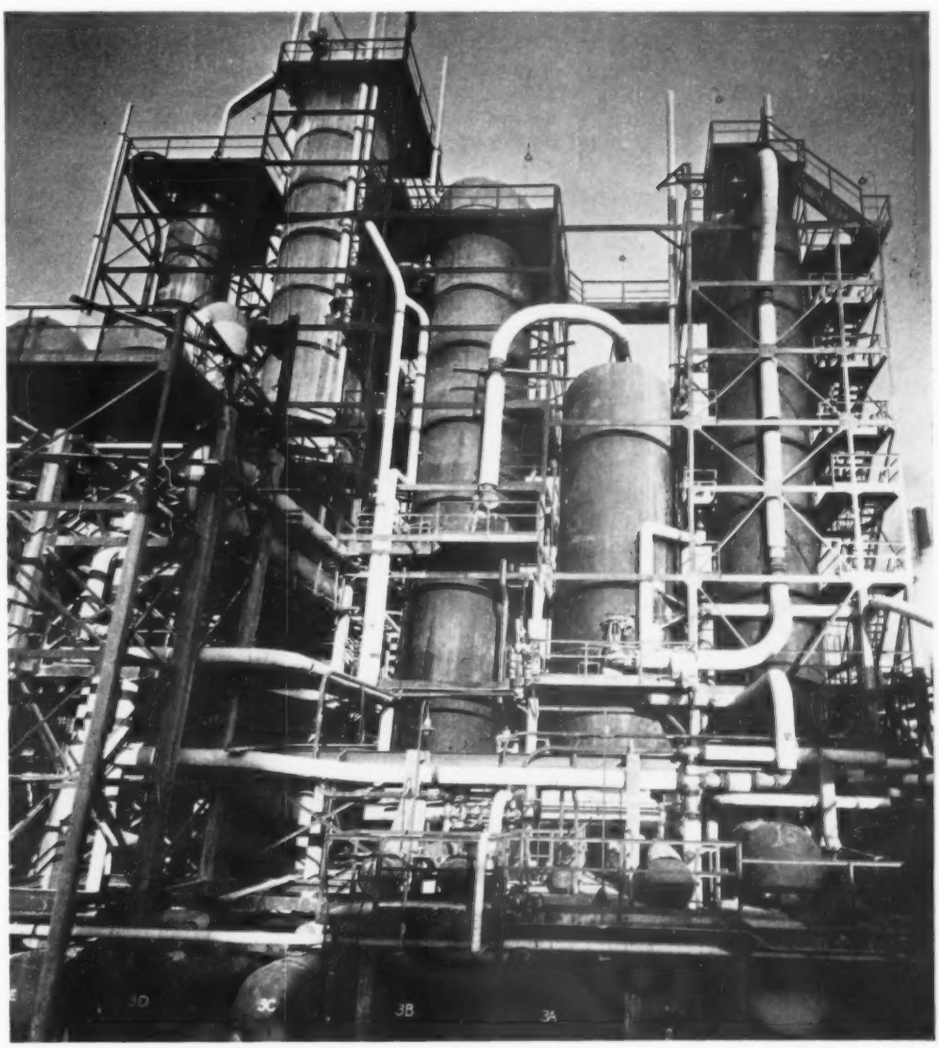
Yields

	Percent
Gasoline	42.31
Fuel Oil	49.03
Gas and Loss	8.66
Total	100.00

Products

	Gasoline	Fuel Oil
End Point	400	
Octane No. CFR-M	70	
Visc./122 Furol		196
B. S. & W. (percent)		0.24

The operating results of this installation on a reduced crude may be illustrated by the above data, typical of approximately 300 hours of operation.



Towers of a 20,000 bbl. per day combination unit — The world's largest cracking installation.

While representing the desirable plant operating conditions, these results do not define the range generally characteristic of the operation. The operation is effective on a reduced crude, or similar residual stock, by virtue of the combined fuel oil flashing and primary cracking steps, and in a more or less recognizable form it appears in other systems.

More complex forms of the combination units, as employed for running crude to ultimate products, are shown in Figures No. II and III. Erected by The M. W. Kellogg Company, and put in service within the last twelve months, these units represent the advantageous association of crude topping, primary cracking, vapor phase cracking, fuel oil flashing, naphtha reforming, clay treating, and naphtha stabilization. From crude oil charge, they produce a stabilized low gum gasoline of the desired anti-knock rating, fuel oil, and gas, directly from the system. Light fuel or furnace oils may also be trapped out directly if desired. The compactness of the equipment serving these functions permits very large quantities of crude to be accommodated without excessive size, which is reflected in outstanding degree in the processing of 20,000 bbl. of crude to completion, daily, by one of these units. The advantage realized through the elimination of handling of intermediate products is obvious.

From the diagrams, it will be noted that the crude oil feed, after preheating with waste heat, is flashed to separate light and heavy straight-run naphtha cuts, the former being ready for incorporation in the finished gasoline, and the latter to be subjected to reforming. In the unit shown in Figure III, provision is made for the additional separation of a kerosene cut in the crude distillation. The reduced crude remaining from this pre-distillation is preheated by contact with hot vapors in the fuel oil flash tower, but Figures II and III show different methods of its subsequent handling. The unit in Figure II further preheats and distills the reduced crude, by introduction to the high pressure evaporator prior to primary cracking. The other unit, however, passes the reduced crude direct from the fuel oil flash tower through the primary cracking coil, and back into the fuel oil flash tower, thereby favoring segregation of the cracked and virgin stocks.

These units employ a redistilled circulation system, for the vapor phase cracking, similar to the one observed in the installation in Figure I. In both cases the circulating stock is carefully controlled in boiling range for suitability for the vapor phase temperature employed, and it is made up of fractions distilling over into the bubble tower, from the evaporator, along with an amount of similar quality condensate from the fuel oil flashing operation. In passing through the vapor phase cracking coil, temperatures upward of 950 deg. F., are attained, and the emerging stream is, in one case, soaked in an insulated vessel.

The naphtha reforming operation is applied to the heavy straight run naphtha cut by digesting this material in a coil at temperatures over 1000 deg. F., and under pressures of 500 lbs., and higher—the total products from this heat treatment being discharged into the high pressure evaporator, and handled subsequently with the vapor phase cracked vapors. The unit in Figure III is provided with a withdrawal point, for heavy naphtha, on the cracking fractionator, which permits inclusion of this stock with the feed to the reforming coil. The total vapors leaving the cracking system, comprise cracked naphtha produced in the primary cracking, vapor phase cracking and reforming, and can be subjected advantageously, to Gray treating, in the vapor phase, as is shown in Figure III. The light straight run naphtha not requiring such treatment is segregated, and combined with the heavier product after treating.

The heating facilities, employed in these more complex combination operations, present numerous unusual features. The heating of the three or more individual streams, characteristic of such operations, as well as the handling of extraordinarily high throughputs, have favored the use of the multi-stream heaters shown in the accompanying figures. This trend has carried with it the necessity of precise design, as well as unique arrangements to preclude limiting interference between individual streams, or the necessity for large over design in securing a practical degree of flexibility.

Figure II will be seen to present an individual heater for primary cracking, and another for naphtha reforming and vapor phase cracking together. In the case of the latter, the two radiant sections serve similar functions in vapor phase cracking parallel streams. The vapor phase feed to this heater amounts to more than 1,300 bbl. per hour. In Figure III, the unit utilizes a single heater only, whose duties comprise the heating of the four separate streams required by the operation. It will be observed that the separate radiant sections serve separate functions, while still others are served by the convection zone.

The performance of these latter types of Combination Unit, since they have been put in service, has been fully in accordance with their theoretical advantages. The following representative data are typical of the results secured on the running of a 36–37 deg. A. P. I. Mid-Continent Crude through one of the larger units above described and they illustrate the results obtainable commercially.

Yields

	Percent	
Straight Run Light Gasoline	15.7	
Cracked Gasoline, Stabilized	50.5	
Total Gasoline		66.2
Fuel Oil	24.8	
Fuel Gas and Loss	9.0	
Total		100.0

Fuel Consumption

Total for Unit—percent of Crude Charge 5.10 percent

Products

	Composite Gasoline	Fuel Oil
Grav. A. P. I.	61.0	9.4
Visc/122 Furol		175
B. S. & W.		.54
Octane No. CFR-M	70	
IBP	84	
20 percent	164	
50 percent	254	
90 percent	382	
E. P.	401	
Percent Rec.	96.0	

The prospects for the future application of the combination operation may be perceived in the erection now under way of a unit for crude oil feed whose capacity will far exceed those of existing self contained systems for similar duties. This installation will accomodate 32,000 bbl. of crude daily. It will embody substantially the same functions as those of the unit in Figure III for processing crude to completion.

The comparatively recent advent of this type of operation has, in the light of its demonstrated capabilities, supplied the refiner with a new tool which fulfills a definite need. Accordingly, it is to be expected that the future will witness an increased tendency toward establishing the main cracking operation as the basis around which all heat treating and distillation operations will be closely centered. The new 32,000 bbl. unit for complete crude processing illustrates the extent to which this may be carried. With continued design proficiency, the advantages now being realized from a limited number of combination units should accrue to a greatly increased extent to the industry in general.

German Oil Production

PRODUCTION of crude oil in Germany during 1932 is reported as 1,824,019 bbl. Germany had at the end of 1932 a refining capacity of 14,000,000 bbl. yearly and produced 3,984,000 bbl. of motor fuel including 440,000 bbl. of alcohol used as motor fuel. Some 8,704,000 bbl. of motor fuel were imported during 1932. Crude oil imported amounted to 1,890,000 bbl. last year.

Shell Makes Changes in Its U. S. Organization

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R. G. A. van der Woude

ACTIVITIES of the Shell organization in the United States have expanded greatly in the past few years in which it has become one of the few organizations marketing petroleum products in all parts of the country. These operations are conducted through a number of separate companies including Shell Oil Company with headquarters in San Francisco, Shell Petroleum Company with executive offices in St. Louis, and Shell Eastern Petroleum Products Corporation operating from New York. Shell Union Oil Company is the holding corporation for these companies and several other subsidiaries as well as for Shell Oil Company of Canada, Ltd.

In order to bring about a closer coordination of activities a general plan of reorganization has been adopted including several changes in personnel and in the division of official duties among the officers of the companies. These changes are designed to establish a more centralized control of policy and operations in the offices of Shell Union in New York.

In pursuance of this program J. C. van Eck who has been president of Shell Union since 1924 has been made chairman of the executive committee, a newly created position. Being relieved of details of management he will be enabled to devote his attention to broad questions of policy and methods. R. G. A. van der Woude, formerly president of Shell Petroleum Company, has been elected president of Shell Union and has transferred his headquarters from St. Louis to New York. W. P. Durkee, Jr. and G. H. van Senden, who formerly were associated with the Shell Oil Company on the Pacific Coast, have been made vice presidents of Shell Union.

Mr. van der Woude, the new executive head of Shell Union has been a member of the Royal Dutch-Shell organization for nearly twenty-five years. In that time he has had a wide and varied experience. For a number of years he was general manager of the Asiatic Petroleum Company for North and Central China. Subsequently he spent some time in Mexico and Venezuela and in 1922 he was appointed vice-president of the Roxana Petroleum Corporation which subsequently became Shell Petroleum Corporation. From 1923 to 1931 Mr. van der Woude was in Europe, serving in various capacities in the head offices of the Royal Dutch-Shell companies in London and The Hague. In 1931 he returned to the United States as president of Shell Petroleum Corporation, serving in that capacity until his election to his present position. Mr. van der Woude married Miss Mary Wendell, daughter of the late Prof. Barrett Wendell of Harvard University.

Mr. Durkee, who is now vice-president in charge of marketing, is a native of Omaha, Nebraska. He left Dartmouth in 1917 to enter the United States Navy. After the war he got a job in one of the California refineries and subsequently worked his way through different branches of the oil industry, including refining, production, accounting and marketing. In 1929, with W. C. Van Fleet, he organized Van Fleet-Durkee, Inc. which operated all Shell owned stations on the Pacific Coast until 1932 when it was absorbed by Shell Oil Company. Mr. Durkee then directed one division of the Shell Oil Company's marketing organization until August 1933 when he was transferred to Shell-Union.

Mr. van Senden, the other newly elected vice-president, has been identified with the manufacturing side of the industry and in his new post will give particular attention to these activities. Prior to coming to the United States he was engaged in refinery work and petroleum research as a member of the Royal Dutch-Shell organization in Roumania and in Netherland India. His first position in America was as superintendent of the refinery at Martinez, California. Later he was made vice-president of Shell Oil Company in charge of manufacturing and served in that position until his transfer to Shell Union.

At the same time when these changes took place A. F. Carter resigned as president of Shell Eastern Petroleum Products Corporation and was succeeded by W. Gould, who previously had been executive vice-president of Shell Oil Company. Alexander Fraser, who had been vice-president of Shell Petroleum Corporation, was advanced to the presidency in succession to Mr. van der Woude. Born in Glasgow 44 years ago, Mr. Fraser started his business career with the Pumpherson Oil Company in Scotland and joined Shell in the United states after the war.

Shell's extensive advertising campaign featuring the sale of "Super Shell" at the regular price of standard gasoline has given a great impetus to its sales and the company's marketing position in the United States is said to be stronger than at any previous time.

J. C. van Eck

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World Oil Production—Official Figures for 1933

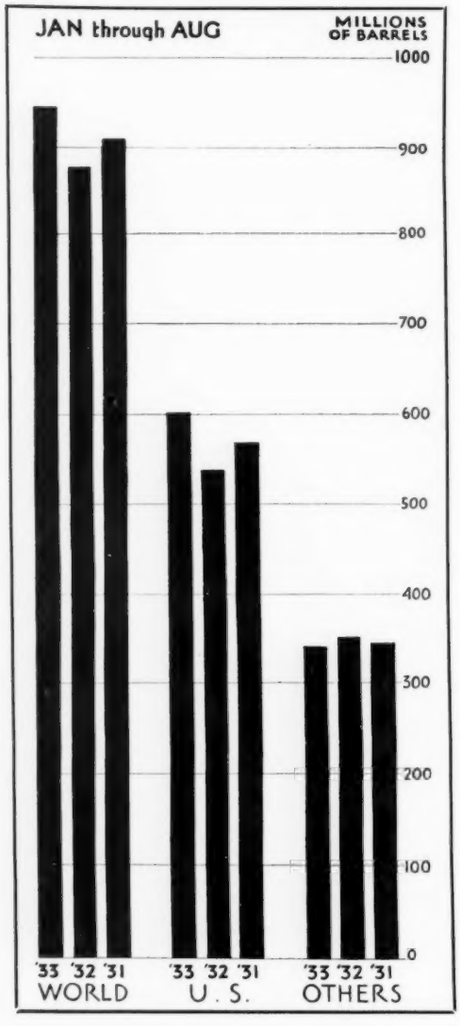
All figures furnished direct to WORLD PETROLEUM by Governments, except where otherwise specified

(Figures in U. S. Barrels—Conversion ratio 7 bbl. = 1 ton)

Country	January 1933	February 1933	March 1933	April 1933	May 1933	June 1933	July 1933	August 1933	September 1933
United States	63,998,000	61,029,000	75,302,000	65,313,000	84,747,000	82,841,000	84,387,000	85,239,000	77,047,550[3]
Russia	10,382,400	10,162,600	11,003,300	11,824,400	12,794,600	12,489,400	11,837,000	13,402,200	14,340,900
Venezuela	8,750,000	9,985,711	10,324,328	9,340,870	9,380,893	9,354,387	10,197,425	10,367,511	10,231,410
Roumania	3,999,898	3,661,749	4,009,649	3,949,001	4,104,919	4,490,220	4,755,600	3,500,000[1]	3,500,000[1]
Persia[2]	3,563,112	2,929,668	3,683,386	3,984,519	4,370,835	4,452,000	4,648,000	4,669,000	4,109,000
Mexico	2,889,658	2,543,443	2,825,021	3,011,973	2,857,620	2,805,353	2,950,803	2,893,211	2,950,000[6]
Netherland India	3,096,051	3,031,021	3,390,051	3,028,639	3,357,214	3,280,382	3,249,428	3,172,568	3,186,435
Colombia	1,005,353	1,035,273	1,218,626	1,093,410	1,169,238	1,113,328	1,189,655[5]	1,164,104[5]	1,085,885[5]
Argentina	1,138,500	1,153,500	1,140,000	1,051,000	1,210,300	1,181,500	1,180,000[1]	1,180,000[1]	1,180,000[1]
Peru	976,931	806,785	942,940	988,766	1,807,565	1,750,206	1,183,527	1,284,726	1,035,338[3]
Trinidad	815,439	778,842	839,857	834,876	816,080	772,626	759,076	780,929	755,676
British India	732,894	669,617	761,302	708,703	729,669	741,244	700,000[1]	700,000[1]	700,000[1]
Poland	338,100	299,845	329,224	318,619	326,900	326,830	336,553	332,934	315,000
Sarawak	180,320	194,166	214,984	196,595	203,385	184,250	196,756	194,327	182,000[1]
Japan and Taiwan[1]	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000
Egypt	136,451	126,861	131,964	124,103	138,348	137,620	136,752	143,836	133,903
Ecuador	133,912	119,345	128,504	121,647	128,226	141,640	147,889	148,467	139,826
Canada	82,778	73,087	87,218	84,974	89,754	113,447	99,510	100,602	97,342
Germany	130,732[3]	121,835[3]	141,183[3]	129,591[3]	134,666[3]	130,200[3]	141,414[3]	153,174[3]	155,778[3]
Iraq[1]	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
France[1]	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000
Others[1]	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000
Total	102,727,529	99,099,348	116,850,537	106,481,686	128,744,212	126,682,633	128,473,388	129,803,589	121,523,042

[1] Estimate. [2] Anglo-Persian Oil Co. figures revised; fuel oil returned to the ground has been deducted. [3] Thuringen estimated 7,000 bbl.; official figure for Prussia. Sakhalin Russian included with Russia. Sakhalin Japanese included with Japan. [4] A.P.I. estimate. [5] International Petroleum Company's figures. [6] Mexican official production figures delayed because of flood damage.

Comparison of crude oil production in the United States, all other countries and total for the world during the first eight months of 1933 and corresponding periods of 1932 and 1931.



Official Figures for 1931, 1932 and First Nine Months of 1933

Country	Total 1931	Daily Average 1931	Total 1932	Daily Average 1932	Total 9 months 1933	Daily Average 9 months 1933
United States	851,081,000	2,331,729	785,159,000	2,145,243	679,903,550	2,490,489
Russia	156,342,900	428,336	149,719,000	409,070	108,236,800	396,471
Venezuela	120,343,104	329,707	119,596,512	326,766	87,932,535	322,097
Roumania	46,333,945	126,942	50,491,205	137,954	35,971,036	131,762
Persia	40,253,486	110,283	45,122,455	123,285	36,409,520	133,368
Mexico	33,038,853	90,517	32,802,285	89,624	25,727,082	94,238
Netherland India	32,818,346	89,913	39,584,027	108,153	28,791,789	105,464
Colombia	18,237,190	49,965	16,384,956	44,768	10,074,872	36,904
Argentina	11,709,759	32,081	13,166,900	35,975	10,414,800	38,149
Peru	10,102,116	27,677	9,899,266	26,026	10,776,784	39,475
Trinidad	9,743,763	26,695	10,023,780	27,387	7,153,401	26,203
British India	7,830,101	21,452	8,600,312	23,500	6,443,429	23,602
Poland	4,397,760	12,048	3,905,230	10,670	2,924,005	10,711
Sarawak	3,338,472	9,146	2,274,043	6,213	1,746,783	6,398
Japan and Taiwan	1,884,285	5,135	2,340,000	6,393	1,755,000	6,429
Egypt	1,845,938	5,057	1,742,370	4,760	1,209,838	4,432
Ecuador	1,750,633	4,796	1,573,857	4,300	1,209,456	4,430
Canada	1,583,339	4,337	1,054,373	2,880	834,370	3,045
Germany	1,778,602	4,873	1,824,019	4,983	1,238,573	4,536
Iraq	1,200,000	3,300	1,200,000	3,300	900,000	3,296
France	512,862	1,405	552,000	1,508	414,000	1,516
Others	338,700	930	432,000	1,180	324,000	1,186
Total	1,356,465,154	3,716,343	1,297,447,590	3,544,940	1,060,388,623	3,884,134

Foreign Oil Legion

LLOYD N. HAMILTON, Bahrein Petroleum Company, Ltd., (Standard Oil Company of California), recently opened an office for his company at 6 Lothbury, London, E.C. 2. Mr. Hamilton was responsible for the successful negotiations that recently resulted in securing important exploration and exploitation concessions in eastern Saudi Arabia as reported in the October issue of WORLD PETROLEUM.

SAMUEL J. ASTBURY has been appointed secretary of the Institution of Petroleum Technologists, London, succeeding Commander Stokes Rées, retired.

MR. SANTALOV, representative of Soyusnefteexport at Amtorg in New York will return to Moscow. His place at the New York post is being taken by Mr. Ackerman.

J. M. PEVSNER, chairman, Russian Oil Products, returned to London recently after a brief trip to Soyusnefteexport headquarters at Moscow.

WALTER H. JEFFERY, well known writer and specialist on deep well drilling, died at Toledo on October 13 at the age of 59.

E. A. SATCHELL, manager of production, Iraq Petroleum Company, Ltd. is making one of his periodical visits to the company's oilfields at Kirkuk, Iraq. Prior to joining the I.P.C. organization, Mr. Satchell was general superintendent of the Lago Petroleum Corporation in the Maracaibo basin, Venezuela.

E. A. Satchell

LORD GLENCONNER, director of Mosul Oil Fields Ltd., and of the B.O.D. Ltd., has been appointed managing director of both companies in place of Sir Alwin Dickinson, who will remain a director of both companies.

J. ELMER THOMAS' retirement from the position of special technical adviser of the Petroleum Administrative Board in the United States has been announced by Secretary of the Interior and Federal Oil Administrator, Harold L. Ickes.

A. E. Dunstan

DR. A. E. DUNSTAN, chief chemist of the Anglo-Persian Oil Company, sailed from New York for England on October 18 after spending several weeks in the United States. The primary purpose of Dr. Dunstan's visit to America was to attend the annual meeting of the American Chemical Society in Chicago, where he presented a paper on "Thermal Decomposition of the Lower Paraffin and Olefin Hydrocarbons." He also made use of the opportunity to confer with leading petroleum technologists and spoke at several meetings of sections of the American Chemical Society. On his departure Dr. Dunstan stated that he was immensely impressed by the great urge to improved methods of treatment in the United States and particularly by the latest developments in solvent extraction processes.

J. A. MOWINCKEL, European director of Standard Oil Company (New Jersey), sailed from New York on October 13, to return to his headquarters in Paris. He was accompanied by other members of the Jersey company.

D. A. SUTHERLAND, chairman and managing director of Affiliated Oilfields Ltd., has returned to England from the Near East where he has been for the past several months.

J. WILKIE-FRYE, director, lube oil sales, Anglo-American Oil Company, Ltd., London, was presented with a gold cigarette case at the recent annual dinner of the National Lubricating Oil and Grease Federation as a token of esteem and affection from his friends in the oil trade, and as an appreciation of his work in the interest of the industry over a period of 40 years.

E. M. CLARK, director, Standard Oil Company (N. J.) sailed from New York on the Europa on October 14 for a visit to his company's London branch.

ORVILLE HARDEN, vice president in charge of producing, refining and marketing operations of the Jersey Standard in South American countries (except Peru and Colombia) was a fellow passenger on the ss. Europa with J. A. Mowinckel and E. M. Clark.

J. H. SENIOR, recently retired from the Jersey Standard Company sailed for Europe during the middle of October. Mr. Senior disembarked at Southampton and travelled to London.

R. G. A. VAN DER WOUDE, recently named president of the Shell Union Oil Company, returned to the United States from Europe in the latter part of September.

MICHAEL V. BARINOV, chairman of Russia's largest oil trust, Azneft, is reported to be about to visit the United States for the purpose of studying production methods in this country and possibly to consider the purchase of equipment for Russian oil fields. Under M. Barinov's direction Azneft is the only trust presently producing sufficient oil to fulfil the requirements of the plan. It is reported that Mr. Barinov will be accompanied by a committee of experts.

M. V. Barinov

PROFESSOR PRITULA has arrived in New York from Moscow for the purpose of studying American oil production methods. He will join Mr. Barinov on the latter's arrival in New York.

UNITED STATES

	Daily Production bbl.	Daily Runs to Stills bbl.	Motor Fuel Stocks bbl.	Imports for week bbl.	California Shipm. East for week bbl.
Week Ending Sept. 30....	2,473,380	2,500,000	52,300,000	406,000	377,000
	503,130*				
Week Ending Oct. 7.....	2,408,120	2,440,000	52,880,000	397,000	343,000
	489,320*				
Week Ending Oct. 14.....	2,419,650	2,445,000	53,800,000	683,000	
	476,900*				

Underlined figures indicate improvement in statistical position—decrease in production, runs to stills, gasoline stocks and imports.
***Total production of the Rusk-Gregg field, East Texas.**

Exports Decline Radically

DURING August, 1933, total imports of all petroleum products increased to 5,351,000 bbl., 173,000 bbl. per day, as compared with 4,693,000 bbl., 151,000 bbl. per day, imported in the preceding month, and 2,855,000 bbl., 95,000 bbl. per day, imported in June, 1933. The increased imports coincided with rising prices for petroleum products in the United States, and were also due in part to anticipated federal regulation of imports under NIRA, which, in fact, limited the imports, effective September 8, 1933, to the average figure during the second half of 1932, when such imports averaged 108,400 bbl. per day. Total imports in August, 1933, continued far below the pre-tariff period, 9,090,000 bbl. per month, 301,000 bbl. per day, having been brought into United States during the first six duty-free months of 1932. A nominal volume of 1,000 bbl. of motor fuel was imported during August, 1933, as compared with a monthly average of 1,272,000 bbl. imported during the first six duty-free months of 1932.

Exports of all petroleum products, including motor fuel, dropped radically in August, 1933, to the average post-tariff levels, concurrent with the increased domestic market quotations in the United States. Total exports in August, 1933, amounted to 8,190,000 bbl., as compared with 11,966,000 bbl. exported in July, 1933, a decrease of 31.6 percent; and 3.5 percent under the total exports in August of 1932. Motor fuel exports declined to 1,961,000 bbl. in August, 1933, as compared with 3,303,000 bbl. exported in July, 1933, a drop of 40.6 percent; and 17.1 percent under the motor fuel exports in August of 1932. Exports of crude oil from the United States continued at a high rate during August, 1933, reaching 3,141,000 bbl. and constituting 38.4 percent of the total exports of all petroleum products. The increasing ratio of crude oil exports to exports of refined products is a notable change in the international petroleum trade in the last few years, working to the disadvantage of the United States since crude oil is the least expensive product.

Proportion of Crude Oil Exports to the Exports of All Petroleum Products from the United States

Year	Crude Oil Percent	Refined Products Percent
1925	11.7	88.3
1926	11.7	88.3
1927	11.2	88.8
1928	12.2	87.8
1929	16.2	83.8
1930	15.1	84.9
1931	20.5	79.5
1932	26.5	73.5
First 8 months 1933	34.0	66.0

The recent recovery of U. S. dollars in terms of gold currencies to about 70 cents from the low of about 63 cents, together with slightly advanced domestic prices, increased the East Texas crude oil quotations in terms of gold from 54 cents per barrel in September to 70 cents per barrel in October, thus probably causing further contraction of the petroleum export trade. The newly announced prices, fixed by the Federal Petroleum Administrator under NIRA, to be effective December 1, 1933 will further advance East Texas quotations to 82 cents a barrel in terms of gold, provided the dollar discount rate continues unchanged at 30 percent.

Refinery Runs Excessive

CRUDE OIL and natural gasoline production during August, 1933, averaged 2,846,000 bbl. per day, 29,000 bbl. per day above the production in the preceding month, and for the fourth month in succession at the highest daily rate of output recorded since October of 1929. The uneconomically high rate of production was cut short by federal intervention when Secretary of the Interior and Petroleum Administrator, Harold L. Ickes, ordered reduction of crude oil production and of withdrawals from storage to 2,409,700 bbl. per day effective September 8, and to 2,338,500 bbl. per day effective October 1.

Total stocks of all oils increased 7,076,000 bbl. during August, 1933, to a total of 612,625,000 bbl., indicating a daily gross addition to stocks of 228,100 bbl. With the exception of May, 1933, this was the greatest accumulation of stocks of all petroleum products since 1929.

Crude oil runs to stills continued till the middle of October at an unduly high rate, being in excess of 2,500,000 bbl. per day since the middle of June, 1933, or some 250,000 bbl. per day above the current economic requirements as determined by the Committee on Refinery Statistics and Economics of the American Petroleum Institute, thus negatively affecting the price structure of motor fuel and largely counteracting the benefits of reduced crude oil production. Crude oil runs to stills are due for immediate sharp curtailment if the proration and withdrawal from storage orders of the Federal Petroleum Administrator are obeyed, or enforced.

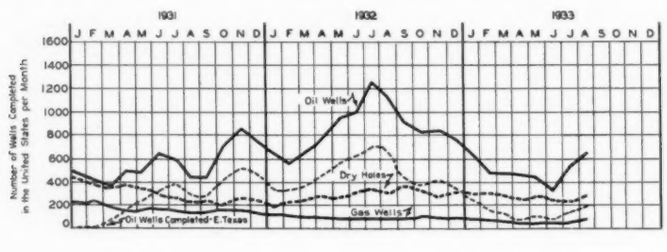
On October 17 the Planning and Coordinating Committee of the oil industry ordered the refining districts of Oklahoma-Kansas-Missouri, Indiana-Illinois-Kentucky, inland Texas, Texas Gulf and northern Louisiana-Arkansas (Bureau of Mines classification) to reduce their motor fuel production during October at least 12.5 percent and during November at least 15 percent under motor fuel output for the month of September.

Motor Fuel Supply-Demand

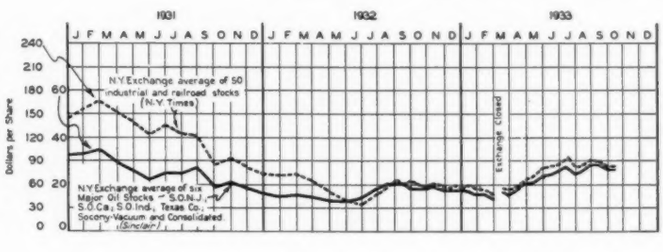
INDICATED domestic demand for motor fuel during August, 1933, averaged 1,207,000 bbl. per day, an increase of 1.86 percent over the adjusted * daily average during July, 1933; 46,600 bbl. above the domestic motor fuel consumption in August of 1932, an increase of 4.02 percent; and 138,000 bbl. per day under the domestic motor fuel consumption in

*** In 1932 and 1933 the June and July figures are averaged because of large reserve accumulation of motor fuel by distributors in anticipation of the Federal one-cent and one half-cent excise taxes made effective in June of 1932 and 1933 respectively.**

U. S. drilling; comparison of oil wells, dry holes, and gas wells.



Six major oil stocks in relation to 50 industrial stocks on the New York Stock Exchange.



August of 1931, the peak year, a decline of 10.27 percent. Domestic motor fuel demand thus indicates that the improvement over the corresponding months of 1932 was extended into August. Latest preliminary information for September and October, however, suggests that the domestic motor fuel consumption failed to maintain its gains over 1932, influenced by recent advances in retail motor fuel prices amounting to 30 percent, and because of continued uncertainties in the business activity of the United States. The New York Times weekly combined business index which rose from 60.0 in March, 1933, to the high of 99.5 in July, 1933, stood at 78.9 in the week of October 7, 1933.

The daily rate of exports of motor fuel averaged 63,000 bbl. in August, 1933, a decrease of 41.2 percent from the preceding month; a decrease of 17.4 percent under August of 1932; and 53.7 percent under August of 1931.

Total daily demand for motor fuel in August, 1933, therefore was 1,270,000 bbl., an increase of 2.70 percent as compared with the total daily demand in August of 1932; but 14.29 percent under August of 1931, the year in which motor fuel demand was at peak.

On September 1, 1933, motor fuel stocks at refineries, terminals and in transit amounted to 51,814,000 bbl., a decrease of 2,249,000 bbl. from stocks on hand on August 1, 1933, indicating that during August, the month of highest consumption, motor fuel demand exceeded supply by 72,500 bbl. per day, as compared with motor fuel storage reduction of 148,000 bbl. and 174,400 bbl. per day in August of 1932 and 1931 respectively. Motor fuel stocks at the close of August, 1933, were 4,274,000 bbl. in excess of the limit recommended by the Committee on Refinery Statistics and Economics of the American Petroleum Institute. On September 1, 1932, total motor fuel stocks amounted to 57,592,000 bbl., indicating that in the past year comparable storage has been reduced by 5,778,000 bbl., the convergence of the difference being due to very limited withdrawals from storage at the height of the 1933 consuming season.

Price Trend Uncertain

CRUDE OIL prices were advanced 10 to 15 cents making the posted price $1.00 a barrel in all Mid-Continent fields effective September 29 for 36 gravity crude as an encouragement for producers to comply with the reduced state allowables for October ordered by the Federal Petroleum Administrator, but the quotations on refined products, particularly gasoline, weakened appreciably during October as a result of seasonally declining consumption and extended high rate of refinery runs. Moreover, the continued uncertainty of the federal price fixing program until the middle of October, and local price wars further upset the refinery markets. The decline in refinery prices to 3½ to 4 cents a gallon of gasoline in Group 3 market meant considerable losses to refiners paying $1.00 per barrel for crude oil, and hence the government was obliged to embark on the price fixing program, failing which the price of both crude oil and motor fuel would have declined considerably with the falling seasonal demand, thus cancelling the gains made under the Oil Code.

Tank wagon service station prices of motor fuel remained firm and unchanged in the principal consuming centers during October, but were locally affected by weak refinery gasoline markets, as in Oklahoma and Texas, and by brief price "wars" elsewhere. In Oklahoma the service station prices were generally reduced one cent a gallon to 16–18½–20½ cents per gallon for the competitive, regular and premium grades respectively, with some stations selling competitive grades at 15 cents per gallon. California service station motor fuel prices dropped as much as 2¼ cents a gallon on October 17, second grade selling at from 11¼ to 14½ cents a gallon and first grade at from 16½ to 17 cents a gallon. Federal investigations of service station price "wars" have been reported in several localities, but on the whole the retail situation appeared to be fairly well under control up to date. Service station prices per gallon for motor fuel, regular grade and including all taxes, in representative districts in the middle of October were:—18.0 cents in New York City, 17.8 cents in Chicago, 18.0 cents in Ohio, 20.5 cents in San Francisco, 18.5 cents in Oklahoma and 27.0 cents in Montreal, Canada, with 2-cent differential for the premium grade.

Refinery gasoline quotations in Mid-Continent districts receded about 1 cent per gallon from the highs, reached about September 20, during late September and early October. On October 18 refinery gasoline was quoted at 4–4¼ cents per gallon for 58–60 U.S.M. grade, 59.9 and below octane rating in Group 3, Oklahoma market; 60 to 64.9 octane rating, U.S.M., brought 4¾–5 cents per gallon; and 65 and above octane rating, U.S.M., commanded 5¼–5½ cents per gallon. On the East Coast, at Bayonne, the U.S.M. grade, 60 to 64 octane rating, was quoted unchanged at 6¼–6½ cents per gallon. Gulf Coast prices for export on October 18 were 5½–5⅝ cents per gallon for 58–60 U.S.M. grade, ½ cent higher than during the preceding month.

Natural gasolines remained unchanged to slightly higher and were quoted on October 18 at 5–5¼ cents per gallon for grade 26–70 in Oklahoma and North Texas, and at 5½ cents per gallon in North Louisiana.

Kerosene prices further advanced about ¼ of a cent per gallon during October and on October 18 grade 41–43 w.w. was quoted at 3½ cents a gallon in Group 3, Oklahoma market, and at 5½ cents a gallon on the East Coast at Bayonne. Gulf Coast prices for export declined fractionally to 4⅛–4¼ cents per gallon for 41–43 p.w. grade.

The future course of prices for petroleum products was definitely determined when Federal Petroleum Administrator, Harold L. Ickes, announced on October 16 the government's decision to fix the prices of crude oil and its products effective December 1, 1933. As indicated elsewhere in this review the decision was due to the weakening price structure, and was the logically inevitable extension of the government control of all branches of the American oil industry due to great diversity and complexity of the interests.

U. S. Prices Fixed for December 1

ON OCTOBER 16 Secretary of the Interior Harold L. Ickes, Federal Petroleum Administrator under NRA, announced the decision of the federal government to fix the prices of crude petroleum and its products. Price schedules to go into effect December 1, 1933, were announced simultaneously, subject to such changes as may be found advisable in the interim period. The decision of the Administration to fix the prices in the oil industry marks the first instance in the history of the government of the United States, war emergencies excepted, that the federal government embarked upon direct price control of a major commodity, thus marking a revolutionary development in the policies of the Administration and possibly opening the way for extension of price control to cover other raw materials and commodities.

The tentative schedules announced on October 16, subject to final approval, provide for an advance of 11 cents a barrel on the Oklahoma, North Texas and Kansas crude oil, and of about 2 cents a gallon on U.S.M. grade, 60 to 64.9 octane rating, refinery gasoline in Group 3, Oklahoma market, with proportional advances throughout United States.

Refinery gasoline quotations have been fixed by the federal order, to be effective December 1, 1933, on the basis of 58–60 U.S.M. grade, 60 to 64.9 octane rating, at 6½ cents (4.55 cents gold*) a gallon in Group 3, Oklahoma market; at 7¼ cents (5.08 cents gold*) a gallon on the East Coast at New York, Philadelphia and Baltimore; and at 6½ cents (4.55 cents gold*) a gallon, f.o.b. tanker, at Gulf Coast ports.

Kerosene prices were fixed at 4½ cents (3.15 cents gold*) a gallon in Group 3, Oklahoma market, at 6 cents (4.2 cents gold*) a gallon on the East Coast for grade 41–43 w.w.; and at 5¼ cents (3.68 cents gold*) a gallon at Gulf Coast ports.

Bunker fuel oil f.o.b. tanker prices were fixed at 79 cents (55¼ cents gold*) per barrel at Gulf Coast ports; at $1.05 (73½ cents gold*) a barrel on the Eastern Seaboard; and at 85 cents (59½ cents gold*) a barrel on the Pacific Coast.

NRA Production Control

ON SEPTEMBER 28 Secretary Ickes, announced reduced crude oil production allowables for the month of October. By this order the total crude oil production of United States is limited to 2,338,500 bbl. per day, or 72,200 bbl. under the September allowable of 2,409,700 bbl. per day. Several states were permitted to allocate part of their allowable production to withdrawals from storage; however, maximum amount to be withdrawn under the order has been limited as follows:—Texas

* U. S. Dollar at 30 percent discount.

Crude Oil Prices

(Dollars per Barrel)		Aug. 25–Sept. 8 1933	Sept. 29 1933	Prices Fixed by the federal administration; effective December 1, 1933 U. S. Dollars	In Terms of Gold at 30% Discount
Oklahoma, N. Texas and Kansas	28 deg.	$0.73	$0.84	$0.95	$0.66½
	36 deg.	89	1.00	1.11	77¾
	40 deg. top	97	1.08	1.19	83¼
East Texas	flat	90	1.00	1.17	82
West Texas	flat	60	70–75	84	58¾
Gulf Coast	25 deg.	81	94	1.00	70
	30 deg.	91	1.04	1.05	73½
	34 deg.	95–99	1.08–1.12	1.09	76¼
	40 deg. top	99–1.01	1.12–1.14	1.19	83¼
Conroe	36 deg.	1.01	1.11	1.28	89½
	40 deg. top	1.09	1.19	1.36	95
Gray County, Texas	40 deg. top	81	91	1.07	74¾
Smackover, Ark.	flat	60	70	84	58¾
Rocky Mountains:					
Salt Creek	36 deg.	89	1.00	1.11	77¾
Elk Basin	flat	1.07	1.18	1.29	90¼
Pennsylvania:					
Bradford Distr.	flat	2.35	2.45	2.50	1.75
Eureka Lines	flat	1.97	2.07	2.15	1.50½
Mt. Pleasant, Mich.	flat	90	1.02	1.11	77¾
			Sept. 6 1933		
California:					
Santa Fe	34 deg.		$1.19	1.36	95
Kettleman Hills	39 deg.		1.11	1.21	84½

—40,000 bbl. per day; Oklahoma—25,000 bbl. per day; California—15,000 bbl. per day; Kansas—10,000 bbl. per day and Louisiana—5,000 bbl. per day. Withdrawals of crude oil from storage under the order are to be "assigned by the appropriate state regulatory body to such persons as have received permission from the Planning and Coordinating Committee and the approval of the Petroleum Administrator. . . ." All states complied immediately with the order of Secretary Ickes and their regulatory bodies issued corresponding allowable schedules.

An important section of the order directed that excess production or withdrawals in any state during September, or any following month, must be classed as overproduction and charged against the allowable of such a state in the subsequent month.

The accompanying table indicates that a considerable effort has been made by all states to bring their production within federal allowables. Texas apparently experienced the greatest difficulty, and will have eventually to cut deeply under current allowables to compensate for current overproduction. California came within a few thousand barrels of the allowable for September, a notable achievement in such a brief period of time. Oklahoma and Kansas, though recording considerable overproduction for September, succeeded in cutting their production early in October to or below the federal allowables.

On October 17 Secretary Ickes advised the state regulatory bodies of Texas, Oklahoma and Kansas that their respective states must immediately comply with the federal allowable schedules and issued a statement in which he endeavored to make clear that crude oil production must be adjusted to the allowables effective September 8 and October 1. If necessary shipments of petroleum in interstate commerce would be curtailed to enforce these orders.

Following the warning of Secretary Ickes the Texas Railroad Commission immediately issued an order curtailing Texas production to 957,555 bbl. per day, or 7,445 bbl. per day under the federal allocation. The state regulatory bodies of Oklahoma and Kansas similarly ordered the producers and purchasers of crude oil to abide by the federal quotas, threatening quick prosecution.

NRA Sustained in Courts

THE FIRST attack in courts on the federal regulations under NRA was won by the government when Federal Judge Randolph Bryant ruled on October 3, in Tyler, Texas, against the Panama Refining Company, denying to that company a temporary restraining order against the orders of the Petroleum Administrator. The decision of the federal judge upheld the right of federal authorities to require from all refineries reports on crude oil received, refined and shipped, thus making it difficult for refiners to violate federal regulations. The defendants in the suit were A. D. Ryan, chief investigator for the Department of the Interior in Texas; S. D. Bennett, U. S. District Attorney for the Eastern Division of Texas; and J. Howard Marshall, assistant to the U. S. Attorney-General. The suit was brought up by the refiners who claimed that NRA violates the Fourteenth Amendment to the national constitution, but the court stated that while it had "greatest misgivings" regarding the constitutionality of the NRA legislation as applied to the refining branch of the industry, it realized that Congress had full and plenary powers over interstate commerce; that the U. S. Supreme Court had extended these powers into many lines of commerce and industry, and that presumption of the validity of acts of agents of the Department of the Interior compelled the court to deny the application of the plaintiffs.

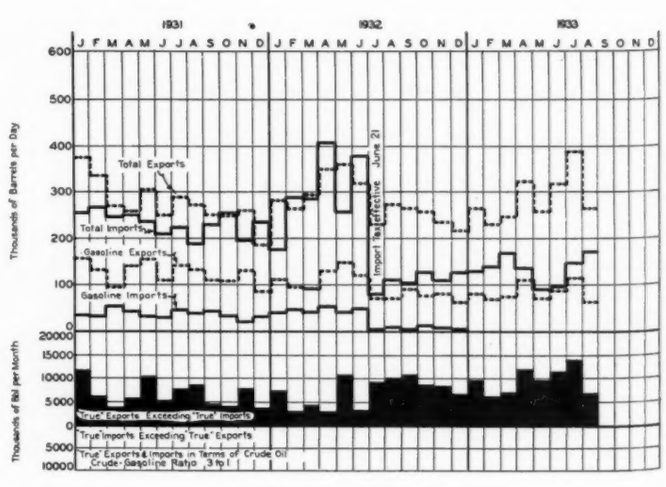
Anti-Trust Suit Dropped

THE OUSTER action of the Texas Attorney General, James V. Allred, against fifteen major oil companies and two trade associations suing them for $17,850,000 in penalties and for forfeiture of their charters on charges that they had conspired to violate Texas anti-trust laws through a code of practices to govern the marketing of refined petroleum products ended abruptly when District Judge J. D. Moore on October 5, in Austin, Texas, sustained a general demurrer against the suit of the Attorney General. The code in question was sponsored by the American Petroleum Institute and approved by the Federal Trade Commission.

The attorneys for the oil companies argued that the NRA oil code was almost identical with the American Petroleum Institute's code, and hence it had the effect of nullifying Allred's suit. Counsel for the state asserted that the NRA oil code could not disturb the state anti-trust laws.

Anderson—Leon Counties: East Texas

THE SOUTHERN extent of the Woodbine sand area of East Texas, between Mexia pool and the south end of the Rusk-Gregg pool, appeared due for an extensive wildcatting campaign as a result of several favorable showings in a number of recent tests. Wells drilled so far in the general area failed to find solid sand bodies, the Woodbine section being broken into thin shale and sand lenses, but


1931
1932
1933
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
Thousands of Barrels per Day
Total Exports
Total Imports
Gasoline Exports
Gasoline Imports
Import Tax Effective June 21
Thousands of Bbl per Month
"True" Exports Exceeding "True" Imports
"True" Imports Exceeding "True" Exports
"True" Exports & Imports in Terms of Crude Oil
Crude-Gasoline Ratio 3 to 1

Total U. S. imports and exports and gasoline imports and exports in relation to true exports exceeding true imports.

even with such unfavorable conditions several wells have had excellent shows and some production of light gravity oil and large flows of natural gas. It appears, therefore, that it is only a question of time before a major oil accumulation will be discovered in a well developed sand section of the Woodbine formation of this general area. This prospective area is only some 130 miles from Houston, and within a few miles of several major trunk lines, and hence will be rapidly opened up as soon as the discovery is made. The petroleum accumulations in this area of East Texas may be anticipated to be found either on anticlinal structural features or in sealed sand lenses; in the later case success of wildcatting will depend very much on the luck of the operators.

Effect of Federal Production Orders on Principal Oil Producing States

(in barrels)

	Texas	Oklahoma	California	Kansas
September:				
Daily Average Allowable	975,200	540,000	480,000	112,000
Actual Production Week Ending 16th	986,467	564,640	490,000	130,000
Week Ending 23rd	993,700	578,550	475,100	127,150
Week Ending 30th	1,003,350	527,650	476,600	121,650
Sept. Production in excess of Federal order	410,000	356,000	11,000	299,000
October:				
Daily Average Allowable	965,000	495,000	455,000	116,000
Actual Production Week Ending 7th	1,005,600	478,800	478,500	116,000
Week Ending 14th	1,027,000	507,000	475,000	112,000

Greta: South Gulf Coast

THE NESRAL OIL COMPANY'S No. 2 W. Heard, in M. J. Ximinez Survey, on the east edge of the Greta field in Refugio County, after missing the regular 4,360-ft. producing sand, was drilled deeper and at 5,911 ft. topped a saturated sand. Penetrating the deep horizon to 5,920 ft. No. 2 W. Heard tested 400 bbl. per day through ¼-inch choke and 1,200 bbl. per day through ½-inch choke, thus making a major depth extension of the Greta pool.

The Greta field at the end of October had about 50 producing oil wells and around 30 drilling projects, and as yet was not definitely limited on any side. The proration of the Greta pool, effective October 7, was upon an acreage basis, the allowable being 8 bbl. per acre, each well being permitted 120 bbl. regardless of acreage, with a maximum of 200 bbl. per day for wells on 25-acre locations. The Texas Corporation Commission limited the spacing of wells to a minimum of one to 20 acres soon after discovery of the Greta pool. The recent proration order allows the Greta pool around 6,500 bbl. per day, as compared with the estimated potential of 50,000 bbl.

King Ranch: South Gulf Coast

A MAJOR reconnoissance wildcat campaign was in prospect in the south Gulf coastal area when the Humble Oil and Refining Company (S. O. N. J.) was reported as having leased for exploration the largest Texas ranch owned by the King—Kleberg estate, comprising some 1,200,000 acres and extending into seven counties for a reported consideration of $3,500,000. The ranch has an 80 mile frontage on the Gulf of Mexico and covers twice the area of the State of Rhode Island.

Central Oklahoma

AN AMENDED order was issued by the Oklahoma Corporation Commission early in October further reducing the waste of natural gas in the Oklahoma City pool. It is estimated that the new rules will save some 250,000,000 cu. ft. of gas per day as compared with the recent gas flow, a saving of about 50 percent, and some 500,000,000 cu. ft. per day as compared with the gas flow earlier in the year. The new order provides for a maximum production and proportional oil allowable of 5,000 cu. ft. of gas per barrel of crude oil brought to the surface, and further permits owners of high gas ratio wells to transfer the oil allowables to other wells on their lease having small gas ratio.

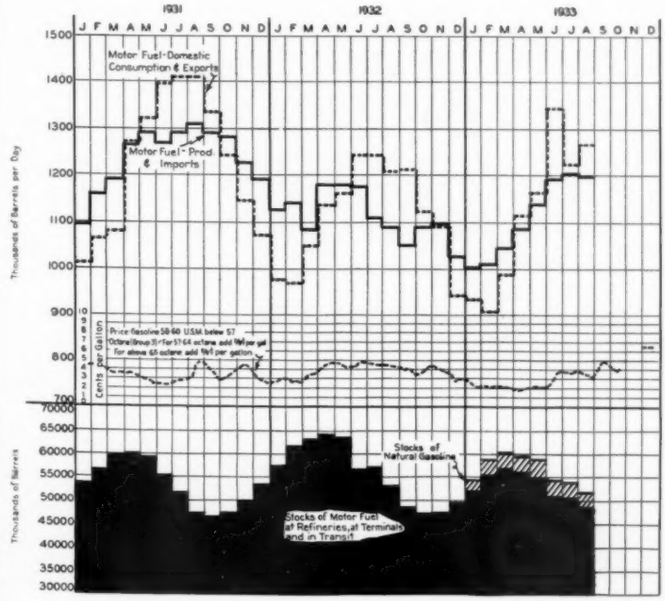
The Oklahoma Corporation Commission also acted to prevent artificial and unfair building-up of potentials by shooting the wells, passing an order that shooting may be done only after an application has been filed with the Commission, and stating that the readjustment of potentials will not be permitted until after the well had produced an equivalent of 60 days' allowable or until 60 days after the shooting.

Michigan

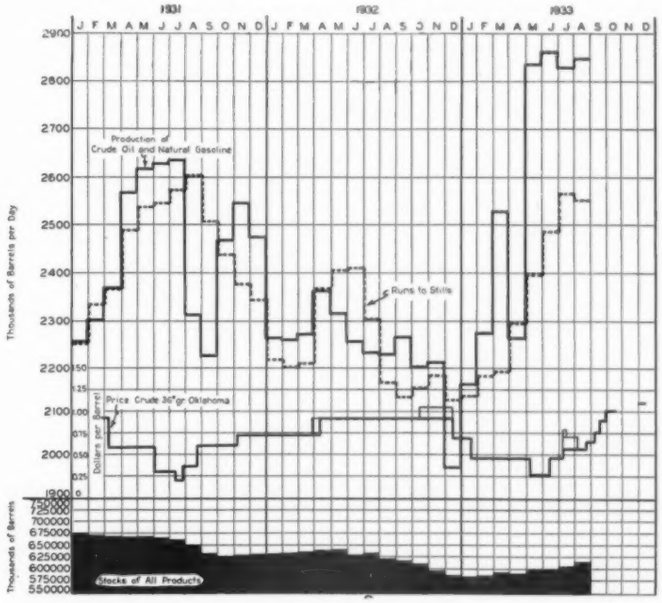
ADDITIONAL completions during October in the Porter field of Central Michigan lifted the state's potential production to about 85,000 bbl. per day, a record figure. Also the second crop of wells was being completed in the Vernon field, which started drilling after the Mammoth Petroleum Company's No. 1 Verette was completed for 11,000 bbl. per day; recent completions in that field averaging, however, but 1,000 bbl. per day.

BASIL B. ZAVOICO

U. S. consumption and exports, production, imports and prices of motor fuel in relation to motor fuel stocks.


1931
1932
1933
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
Motor Fuel-Domestic Consumption & Exports
Motor Fuel - Prod. & Imports
Thousands of Barrels per Day
Price Gasoline 58-60 U.S.M. below 57 Octane Group 3 - For 57-64 octane add 1/4¢ per gal. For above 65 octane add 1/2¢ per gallon
Cents per Gallon
Stocks of Natural Gasoline
Stocks of Motor Fuel at Refineries, at Terminals and in Transit
Thousands of Barrels

U. S. production, runs to stills and price of crude oil in relation to stocks of all petroleum products.


1931
1932
1933
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
Production of Crude Oil and Natural Gasoline
Runs to Stills
Thousands of Barrels per Day
Price Crude 36° gr. Oklahoma
Dollars per Barrel
Stocks of All Products
Thousands of Barrels

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Drilling in the open Caspian sea: 1,000 ft. from shore near Illiitch Bay, this well is producing 700 bbl. of oil daily from 1,964 ft.

RUSSIA

Official Figures for Soviet Oil Operations

	Crude Production (Bbl.)	Daily Average (Bbl.)	Run to Stills (Bbl.)	Drilling (Ft.)
January	10,382,400	334,917	9,510,900	157,486
February	10,162,600	362,950	9,167,900	169,396
March	11,928,700	384,800	11,003,300	228,532
April	11,824,400	394,150	10,472,700	228,790
May	12,794,600	412,729	11,834,900	213,744
June	12,489,400	416,313	11,641,700	198,729
July	11,837,000	394,567	10,887,800	214,385
August	13,402,200	432,329	11,707,500	236,200
September	14,340,900	478,363	11,481,400	306,414
Total 9 months 1933	94,821,300	346,063	86,226,700	1,647,262
Total 9 months 1932	115,865,800	424,800	109,959,082	1,930,542
Revised quota 1933	170,800,000	467,670	155,000,000	3,315,000

Crude oil conversion ratio: 7 bbl. = one ton

Increased Baku Production Continues

FOR the second consecutive month the oilfields of Baku were responsible for an increase in Soviet crude oil production during September, while all other fields, headed by Grozni and Maikop, continued to lag behind the plan. From 316,000 bbl. per day in August, Baku production increased to 336,000 bbl. per day in the first half of September and further to 350,000 bbl. in the second half of September. Total daily average crude production for all Russia reached 478,363 bbl. during September, being the highest figure recorded for Soviet production since the nationalization of the industry. The plan for 1933 calls for 468,800 bbl. daily.

The greater part of Baku production responsible for the oil industry's ability to fulfil the plan for crude production is, however, derived from gushers which in the long run are not as reliable a source as less spectacular wells. Although it may be said that this production was only obtained as a result of scientific exploration work and a successful drilling campaign, some anxiety is expressed in Russia as to the continuance of production after the important gushers of Lok Batan and other Baku fields begin to decrease. The drilling campaign which called for 300 new wells at Lok Batan, Kala, and Artema before the end of the year is progressing very favorably, 67 having been completed during August, 20 more in September, and 17 in the early part of October. All these wells are reported to show less crookedness and better records of continuous operation than ever before.

The program that called for concentration of all available resources in the Baku fields has been successful in bringing production up to the desired point, but considerable disorganization has resulted from the pressure on this leading Soviet trust to speed up production. No records relating to the amount of labor employed at Lok Batan have been kept and material and equipment have been stored without system in any available space. In short, this production record at Baku has been obtained to a certain extent by neglect of other producing fields and by a certain disorder at Baku itself. It remains to be seen if the records established are merely temporary or if the same tempo can be maintained with less concentration on Baku. Pumping wells at Baku and elsewhere, which may be said to form the backbone of production, have been neglected and the Central Committee of the Communist Party has called attention to the necessity of rectifying this state of affairs if the industry is to stabilize its production at the figure called for by the second five year plan.

Special advantages have been given to labor at Baku which has been graded up to the rank of Leningrad and Moscow labor. Houses have been built and an adequate food supply assured, while teams have been formed headed by experienced drillers to carry on the work of exploration. Efforts are also being made to bring the refinery capacity of Baku up to a point where it will be able to handle a continued production equal to its present daily crude production.

Improved Operations at Grozni Anticipated

AS MENTIONED in previous issues of WORLD PETROLEUM Grozni is the principal obstacle in the way of fulfilment of the plan for 1933 and has, in fact, succeeded in jeopardizing the fuel balance of all Russian industry for this year. Encouragement for the correction of this condition may be found, however, in the fact that the authorities are finally fully aware of the situation and are determined to take steps to correct it. Mr. Ordzonikidze, Commissar for Heavy Industries of Soviet Russia, has criticized the operations of Grozni severely, pointing out that 10 to 12 months are required for drilling wells to a depth of 3,000 ft., indicating low labor efficiency and poor technical supervision. Grozni has allowed gusher production, which at one time amounted to 80 percent of its total output, to lag and no steps have been taken to revive the production of these wells through the installation of pumping units. The pumping wells which in recent months have come to represent the greater part of Grozni production show an amount of disorganization that has seriously hampered production. No study or preparation has been made for deep drilling to open up lower and possibly more productive horizons. Having reviewed the decline of production at Grozni under the administration of Chamroff, who was recently dismissed for inefficiency, Mr. Ordzonikidze recommended that the following steps be taken to rehabilitate the oil trust:

The administration of Grozni under Konstantin Riabovol should be reorganized to remove all trace of anti-party and anti-government sentiment which in the past endeavored

to create the impression that resources of Grozni were exhausted.

Equipment must be furnished to the trust in order to enable it to meet its quota of 140,000 bbl. of crude production per day. A steady supply of labor of superior quality must be assured for exploitation of existing fields and for developing production in other fields under Grozni control.

At least 300 wells must be brought under production in 1934 to produce 7,000,000 bbl. from the October region and the Molgabek fields. Exploration must be extended and intensified in Benoi and Oldgrozni.

The administration of Grozni must prepare at once a program of drilling for the last quarter of 1933 and the entire year 1934 with a list of the equipment required. This equipment must be supplied to Grozni at the time specified.

A reorganization of the geological department of Grozni bringing all exploratory drilling under the direction of regional divisions of the geological department, of which M. Shangin is to be appointed head. Comrade Pitersky is directed to make a survey of all the fields under the control of Grozni, probably for the purpose of making further detailed specific recommendations.

The Red Hammer plant, which furnishes equipment for the oil industry, is to be devoted exclusively to supplying Grozni.

Salaries of the technical force are subject to an increase of 20 percent at the discretion of K. Riabovol, head of Grozni.

It is obvious that the authorities at Moscow, encouraged by the success of their program at Baku, hope to be able to apply the same methods of concentration on Grozni with the same gratifying results. No doubt, if this program is carried out as faithfully in Grozni as it was at Baku some improvement will result; but due to the different conditions existing in the Grozni controlled fields it is doubtful if anything like the same measure of success will be achieved. That a number of gushers comparable in size to those discovered at Lok Batan should be opened up at Grozni seems unlikely. Drilling conditions at Grozni are less favorable and the cream of the skilled labor is already concentrated at Baku. However, with an adequate supply of equipment and improved conditions attracting a better class of labor, under the very able administration of Konstantin Riabovol, steady improvement may be anticipated. The effect of this improvement may not be felt throughout the Soviet industry at once, as progress is likely to be somewhat slower at Grozni than at Baku.

Other Fields

THERE is also ample evidence that the Communist Party will bring about a change in the present attitude toward the secondary oil fields of Russia. Under pressure for supplies of petroleum for domestic consumption and export, attention in the recent past has been concentrated on the Caucasian oil fields despite their relatively unfavorable location in regard to the new industrial centers in the Urals, Siberia and the Soviet Far East. Considerations of national defense also require a wider distribution of fuel bases over the country.

In furtherance of this policy development of the 150 locations comprising the Emba group, consisting of geological-formations similar to those found in Texas in the United States, and the Turcoman group in which a gusher at Neftdag has already produced over 1,000,000 bbl. of crude are scheduled to receive a more intensive drilling campaign. The Ural-Bashkir fields are to be linked up to the Emba group. The Okha field at Sakhalin, having produced 875,000 bbl. of oil in the first half of 1933, is expected to supply the Soviet Far East in the near future. Chimion, Shorsu and Kios are expected to supply the Soviet cotton belt. Nevertheless, although these fields require immediate development and other fields such as Bikal, Georgia, Kamchatka await future development, there is a strong possibility that development of these fields will wait on improvements at Baku and Grozni which are the chief and most dependable present sources of supply. Development of fields other than Baku and Grozni is likely to be postponed for some time.

Drilling speed in these secondary fields is very slow, amounting to about 148 ft. per rig per month at Middleasia and 136 ft. at Gruzneft against 462 ft. per rig per month at Baku. Drilling is through more difficult formations than at Baku and the quality and supply of labor is less adequate. Removal of these and other obstacles will naturally assist the development of the secondary fields but progress is indicated in the attention that a campaign for development is receiving from the Communist Party.

Statistics

DURING August exports of Soviet oil and products showed a decline of 40 percent compared with the corresponding period of 1932. Exports of all products showed declines except lubricating oils which increased 301 percent.

Exports to Great Britain fell off 42.4 percent, while small increases (0.5 percent) were registered for Germany and larger increases for Denmark, Italy, Lithuania, Norway, Uruguay, Finland, Sweden, and Esthonia, during the first eight months of 1933. A significant increase in exports during the first eight months of this year was registered for China where an increase of 31.5 percent took place.

Soviet Oil Exports by Products

(Barrels)

	Eight Months 1933	Eight Months 1932
Crude Oil	979,713	2,113,846
Petrol and Ligroin	8,344,152	11,498,638
Kerosene	3,527,112	3,946,369
Lube Oil	1,440,995	1,114,980
Fuel and Gas Oil	11,354,247	11,753,047
Total	25,647,934	30,453,235

Oil Consumption in Russia by Products

(Barrels)

	Eight Months 1933	Eight Months 1932
Gasoline	5,239,400	4,816,100
Kerosene	16,811,300	14,931,150
Lube Oils	2,482,400	2,059,000
Fuel Oil	35,722,925	45,503,900
Other Oil	992,600	1,529,500
Total	61,248,625	68,839,650

Consumption of all products in the domestic market has increased considerably during the first eight months of this year as indicated in the accompanying table. J. WEGRIN

▼

British Imports Increase 11 Percent

IMPORTS into Great Britain of petroleum and its products continued to expand during September, the total, at 6,271,325 bbl., being well above the corresponding month of 1932, and representing an advance of 644,562 bbl., or approximately 11 percent, on the August 1933 total.

A small recovery took place in kerosene imports, and fuel oil and motor spirit showed big advances. The rise in motor spirit imports may be attributed in part to re-stocking by the Russian organization, although the latter is said to have been distinctly less active in the British market this year, particularly since the termination of the marketing arrangements with the "national" distributors and the temporary embargo on Russian products.

The September figures appear below, with a comparison of British oil imports for the first nine months of this year and last.

Aggregate imports for the nine months show an increase of seven percent on those for the corresponding period of 1932, against a comparable increase of just over six percent at the end of July. The rate of expansion is therefore rising, which conforms to the general trend of British trade. The British figures thus indicate possibilities of larger absorption of petroleum products throughout the world as general trade improves.

British Oil Imports by Products

(Barrels)

	September 1933	Nine months to Sept. 30, 1933	Nine months to Sept. 30, 1932
Lamp oil	374,694	3,690,254	4,594,280
Motor spirit	2,820,881	24,246,103	21,268,424
Other spirit	23,825	327,417	348,449
Lubricating oil	316,338	2,185,486	1,993,209
Gas oil	226,203	2,423,595	2,165,974
Fuel oil	1,592,082	11,651,902	10,825,076
Other sorts	1,559	7,013	18,032
Total products	5,355,582	44,531,770	41,213,444
Crude	915,743	8,396,739	8,254,120
Total imports	6,271,325	52,928,509	49,467,564

CANADA

Imports

MONTREAL, OCT. 19TH.

IMPORTS of crude into Canada during August totalled 3,323,208 bbl. compared with 3,379,185 bbl. in July of this year, and 2,565,045 bbl. in August 1932.

Origin of August Canadian Imports

(Barrels)

United States	2,136,708
Trinidad and Tobago	9,282
Colombia	114,251
Dutch West Indies	304,168
Peru	544,975
Venezuela	213,824
Total	3,323,208

Rising values were reflected in the fact that, though quantity importations showed a decrease compared with July, values showed an increase of just over $100,000.

Gasoline imports showed a further decline being 21,443 bbl. compared with 24,503 bbl. in July of this year, and 188,244 bbl. in August 1932. Total imports for the twelve month period ending August 1933 were 1,142,605 bbl. compared with 2,250,397 bbl. for the same period ending August 1932. Total imports of petroleum, asphalt, and their products were valued at $3,449,022 during August, compared with $2,961,936 in July.

Production

PRODUCTION of crude from Canadian sources totalled 100,602 bbl., compared with 99,510 bbl. in July, and 85,229 bbl. in August 1932.

Prices

EFFECTS of the N.I.R.A. are foreshadowed in Canada by increased gasoline prices. On the other hand it is stated that an investigation will be made into Canadian gasoline companies, based on the charge of David Croll, Mayor of Windsor, Ontario, that a combine exists. This announcement was made October 10 by F. A. McGregor, registrar under the Combines Investigation Branch of the Dominion Labor Department. The scope of the inquiry has not been decided.

The Mayor of Windsor applied for an investigation about three weeks before the announcement was made, stating that it was his belief that gasoline companies operated as a combine, enhancing prices, and throttling competition. The application was signed by several Windsor Aldermen.

Until the scope of the inquiry has been decided it will be impossible to say when it will open or how it will be conducted. It is generally believed that the registrar or one of his officials will conduct the investigation, and that few, if any, public hearings will be held.

General

THE BRITISH AMERICAN OIL CO., LTD., have bought the plant and assets of the Sterling Oil Refineries, Ltd, Moose Jaw, Sask. The British American operate refineries in Montreal and Toronto, and their new acquisition is in a central position for supplying the requirements of the prairie provinces.

The Department of Mines, Ottawa, has issued a Gasoline Survey for 1932. This report is devoted largely to analyses of marketed gasolines from various centers. Taken generally, these indicate that Canada is being supplied with gasoline of good quality. An interesting point brought out is the increasing use of artificially colored gasolines. According to samples examined in the Survey, the percentages of artificially colored gasolines sold in Canada during the past six years was as follows:—10 percent in 1927; 13 percent in 1928; 18 percent in 1929; 26 percent in 1930; 34 percent in 1931, and 52 percent in 1932.

R. C. ROWE

MEXICO

Tampico Cyclone

DAMAGES and loss suffered by petroleum companies in the Tampico zone which newspaper reports placed in the staggering millions appear to be much exaggerated from estimates made by Mexico City representatives of oil enterprises in that area. Mexico City officials of the Mexican Eagle Oil Company (Royal Dutch-Shell) estimate the company's Tampico disaster losses in the form of damaged property, curtailed production and transport at upward of 1,000,000 pesos (some $300,000, U. S.). Cyclones and floods put about 20 percent of the Eagle's Tampico zone properties out of commission for several days, but work there has now been normalized. Eagle's Tampico holdings represent an investment of around 50,000,000 pesos (about $23,500,000, U. S. figured at exchange rates varying from 2 to 3.50 pesos per dollar). Mexico City officers of the Administrative Control of National Petroleum (federal government agency) estimate damages and loss to agency's Tampico properties at about 50,000 pesos (around $14,000) of which 30,000 pesos loss was sustained by the 2,500 bbl. daily capacity refinery which cost 500,000 pesos (about $140,000) and had been functioning only six weeks at the time of the disaster, and 20,000 pesos loss to wharves, warehouses, etc. It was said at the Mexico City offices of Huasteca Petroleum Company that Mexican and foreign newspaper estimates of losses to oil companies in Tampico were placed at absurd figures.

The Tampico catastrophe did not cause a petroleum shortage in Mexico City or elsewhere throughout Mexico.

Motor Fuel Price

THE FEDERAL government has received petitions from organizations of Mexico City automobile owners and chauffeurs urging substantial cuts in duties on foreign gasoline, that this product be allowed to enter Mexico in unlimited quantities, and that a free gasoline market be established in the Mexican capital as a means of reducing retail prices. Petitioners assert that these steps would break a gasoline monopoly which they allege is exercised by a group of oil companies and is holding gasoline at 20 centavos per liter (22.7 cents per American gallon), a price which they contend is excessive.

Drilling

MEXICAN EAGLE Oil Company has brought in El Burro No. 44 well with an initial daily production of 1,245 bbl. in the El Burro zone, near Puerto Mexico, Vera Cruz. The well is on the Isthmus of Tehuantepec where the company has been concentrating its efforts for several years.

Oil explorations were made during July by sounding and sismological methods along the American border in Nuevo Leon and Tamaulipas states. The Petroleum Department reports completion of two important wells in the Isthmus of Tehuantepec region, both in the El Plan zone in the northeastern sector of that area, one by the Mexican Eagle Oil Company

at 2,203 ft. which had an initial daily output of 3,145 bbl. and greatly extends the zone's production area, and the other by Administrative Control of National Petroleum at 2,504 ft. and with a daily initial output of 1,000 bbl. Both wells are producing high grade light crude, the department reports.

Ten drilling permits were granted during August, distributed as follows: Mexican Gulf Oil Company, five, all in the Panuco zone, Vera Cruz; Mexican Eagle Oil Company, three, two in the Isthmus of Tehuantepec region, Vera Cruz, and one in the Huimanguillo zone, Tabasco; Mexican Petroleum Company (Royal Dutch Shell) and International Petroleum Company, one each in the Panuco zone.

Increased Runs

REFINERIES in Mexico increased their production from 2,011,430 bbl. in February to 2,558,300 bbl. in June, announces petroleum department of the Ministry of National Economy. The department attributes this production increase to installation of modern machinery and methods, expanding capacity of existing plants and the erection of new refineries. Mexican refineries are gauging their production strictly in accordance with demand for their products, the department says.

Labor difficulties which brought strike threats at the Minatitlan refinery of the Mexican Eagle Oil Company resulting from the employees being disgruntled with collective labor contracts the company offered have been eliminated following agreements satisfactory to both sides, announces the federal board of conciliation and arbitration.

July Exports

PETROLEUM and products exported during July totaled 2,502,275 bbl. of which 1,289,632 bbl. were heavy crude, 540,066 bbl. fuel oil, 277,345 bbl. gasoline, 195,210 bbl. gas oil, 120,391 bbl. refined kerosene, 39,885 bbl. lubricants, and 39,746 bbl. asphalt (equivalent) reports the Ministry of Finance's special taxations department. Of these exports, 51.4 percent were shipped by the Mexican Eagle Oil Company, 16.7 percent by the Huasteca Petroleum Company and 8.4 percent by Mexican Sinclair. The United States (43.1 percent); Great Britain (23.7 percent); Germany (14.5 percent) and the Argentine (7.4 percent) were the principal countries receiving Mexican oils in July. Federal government obtained 856,871.18 pesos (some $279,000, U. S.) from production taxes on exported oil and export imposts on those products during July of which 579,000.04 pesos came from the former and 277,871.14 pesos from the latter, against a total of 672,425.13 pesos (about $220,000) from both sources in the same month of last year.

DOUGLAS GRAHAME

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FINANCE

New York: October

THE EVENTS of last month which exerted the major influence upon financial markets were in some respects rather inconsistent and contradictory in their economic significance and implication. The mid-month Treasury financing and the announcement of calling of one-third of the Fourth Liberty 4¼s for refunding with 3¼s were distinctly suggestive of a growing ascendency of conservative financial policy in Administration circles in Washington and a repulsing of the advocates of more drastic inflation. This development, in conjunction with further business recession and a growing discontent under the NRA, augmented the sagging tendency of the markets and carried prices below their summer lows.

Meanwhile, revolt against the NRA crystalized into definite form in some of the farming states of the middle west and President Roosevelt was prompted to take his case to the country over the radio on October 22. At this time he reiterated some of the salient objectives of his economic program, particularly his determination to bring about a higher commodity price level. He announced a new gold buying program for the Reconstruction Finance Corporation designed to control the gold value of the dollar and prevent a recovery of its quotations in foreign exchange such as would impede the domestic price raising program. As a result of this appeal, the markets immediately responded with a sharp rebound and quickly retraced the greater part of the ground that they had lost after announcement of the Treasury refunding plan.

The oils, as has been the case since the market break last July, offered better than average resistance to the decline and shared in proportion in the upturn. Their action has undoubtedly reflected the belief that the industry is in relatively favorable position to benefit from operating under the NRA. Secretary Ickes, as Federal Oil Administrator, is determined that crude output and refinery runs shall be kept in balance with market needs and in these objectives has the support and cooperation of all the best elements of the industry. Of more doubtful necessity and ultimate efficacy is the excursion into price fixing which has been tentatively scheduled for inauguration on December 1.

A JOINT announcement has been issued by Standard Oil Company (New Jersey) and Standard Oil Company of California to the effect that the discussions looking toward a consolidation of these two companies have been abandoned by mutual agreement. Although no reasons for this action were given, it is generally believed that the chief stumbling block has been the inability to agree upon mutually satisfactory terms, with certain of the California company's stockholders standing out for more liberal treatment than the Jersey company has been willing to accord.

The first intimation that these two companies were considering a possible merger came in March, 1930, when it became known that the Department of Justice had been approached during the previous year and had expressed the opinion that such a merger would be in contravention of the Standard Oil dissolution decree of 1911. The favorable decision on the merger of Standard Oil of New York and Vacuum in February, 1931, was followed by a resumption of negotiations by these companies and later in the year it was thought that an agreement had practically been reached.

UNION OIL COMPANY of California reports a substantial increase in operating profits in the third quarter of this year as compared with the second and first quarters, showing 24 cents per share as compared with deficits of 1 cent and 25 cents. In the June quarter, however, there was a special nonrecurring profit of $1,350,000 from sale of the company's one-half interest in the Union Atlantic Company, and inclusion of this item would bring that period to a profit of 30 cents a share. The nine months period, excluding the special profit, showed a loss of $100,000, equal to a deficit of 2 cents a share on the outstanding capital stock.

As of September 30, current assets totalled $47,800,000 including $14,700,000 in cash resources, and total current liabilities were $5,500,000. During the first nine months of this year, purchase obligation notes were reduced by $1,726,000 and the bonded debt was decreased by $3,109,000, making a total reduction in outstanding debt of $5,085,000.

The dollar volume of sales for the first nine months amounted to $37,700,000, a decrease of $6,150,000 from the same period of 1932, the decline being in part due to the fact that lower average prices prevailed during this year for all products.

ATLANTIC REFINING'S report for the third quarter shows a striking improvement in earn-

ings with net income of $5,710,000 equal to $2.12 per share comparing with net income in the same period of 1932 of $1,063,000, equal to 39 cents per share. Sagging prices and a consequent inventory loss during the first half of this year resulted in a deficit equal to 86 cents per share, excluding a special profit of 49 cents a share which resulted from sale of the company's half interest in Union Atlantic Company, a marketing subsidiary in Australia and New Zealand. Including this profit earnings for the nine months ended September 30, 1933, were equal to $1.75 per share compared with $1.58 per share for the same period of 1932.

TIDE WATER ASSOCIATED Oil Company has reported in the black since the first quarter of this year and has followed the 7 cents per share earned in the June quarter with a net of 26 cents per share in the September quarter, the latest six months together wiping out all but 6 cents per share of the 40 cents per share deficit sustained in the first quarter. These figures are after making allowance for full preferred dividend requirements, although the preferred stock has not received any payments since January of this year. For the nine months ended September 30, actual net income amounted to $2,639,000, compared with net of $3,495,000 in the same period of 1932. These figures are equal to $3.96 and $5.24 per share of preferred respectively. In connection with the report, the president of the company states, "The substantial increase in earnings during the third quarter can be attributed to improvement in prices and to definite progress in the company's integration program, put into effect some time ago, through which we have been able to produce a greater proportion of our finished products from our own crude reserves, and to bring about a material reduction in transportation and other operating costs. The introduction and progressive promotion of new products this year by our company has further enabled us to maintain and increase our share of the available market."

ALTHOUGH Mid-Continent Petroleum operated in the black in the third quarter of this year to the extent of a profit of $714,000, equal to 38 cents per share, this was quite inadequate to erase the first and second quarter deficits of $1,470,000 and $1,234,000 respectively, and the final results for the nine months ended September 30 showed a deficit of $1,-989,000, equal to a deficit of $1.07 per share. In 1932, the second quarter was the only period which showed a profit and the deficit for the nine months of that year amounted to $944,000, or 51 cents per share. The company has no bank loans, bonds or preferred stock outstanding and has maintained a strong financial position with current assets as of September 30, 1933, amounting to $16,035,000, including $6,368,000 of cash and U. S. Government short term notes. Current liabilities on that date totalled only $2,445,000.

BARNSDALL CORPORATION appears to have been one of the few of the more important oil companies which was unable to show a profit for the third quarter of this year. Its deficit, however, was substantially reduced, amounting to 5 cents per share in comparison with a deficit of 45 cents per share in the second quarter and of 39 cents per share in the first quarter. In connection with the report, the chairman of the company stated that if inventories were written up to market as of September 30, 1933, the company would have shown substantial earnings for the third quarter. This indicates quite definitely that if the price structure holds (as is expected), the profit margin will be larger in the coming months and the company may succeed in getting back into the black. On June 30, last, the company had notes payable of $1,812,000 which we understand have been reduced since that time to approximately $1,100,000, and it is the hope of the company that this bank indebtedness can be entirely retired by the end of the year.

IT HAS BEEN officially stated that Continental Oil Company has been negotiating for disposition of its foreign properties. The Sealand Petroleum Company, Ltd., which operates in the marketing branch of the industry in England, is understood to be the principal item involved in the negotiations, if not the only one, and the prospective purchasers which might be interested to acquire it are stated to be the Shell Transport and Trading Company, Ltd., Anglo Persian Oil Company, Ltd. and Anglo American Oil Company, the latter being a subsidiary of Standard Oil Company (New Jersey).

C. C. BAILEY

London: October

DEVELOPMENTS in the United States are being watched with intense interest in the London oil share market, where dealers remain extremely hopeful of the success of the oil industry code. The reduction in output so far achieved and the continued announcement of advances in prices for crude are considered highly satisfactory, and are believed to betoken a final solution of the problem of overproduction in America. Conditions in the United States are recognized as the key to the world position, and a natural result of basic improvement there has been the persistence of predictions of an immediate rise in British motor spirit prices. Some of the optimists had even gone so far as to fix the prospective rise at 3½d. per gallon in advance. More cautious dealers, while admitting the radical change for the better in the situation, are expecting that a move to raise the British petrol price level will await a further strengthening of the American price structure. Share prices, therefore, have responded rather cautiously to the good developments of the past month, and part at least of the advance in quotations has been a reflection of the insistent buying of British industrial equities of all kinds. The undertone of the oil share market is nevertheless remarkably firm, and any profit-taking sales by investors are readily absorbed. This suggests that dealers are willing to take shares in the hope of a wide public demand following the complete success of American restrictive efforts.

IMPROVEMENT in the Roumanian industry has been attracting considerable attention to

(Continued on page 386)

New York Stock Prices

1933 High	1933 Low	Current Div. $ per Annum	Stock (Par Value $)	September 18–October 21 Sales (Shares)	First	High	Low	Last	Net Change[1]
47	18½	2.00	Amerada (No)	62,200	44⅞	46⅞	38	40	− 5¼
31⅞	12⅜	1.00	Atlantic Refining (25)	142,300	30⅝	31	24¼	26	− 4¼
11	3	....	Barnsdall (5)	152,700	10⅝	10¾	7¼	7½	− 2¾
4	¼	....	Colon Oil (No)	12,000	2½	2½	1½	1½	− 1⅛
15¾	5	....	Consol Oil (No)	696,100	14⅝	15	9¾	9⅞	− 4⅝
19⅝	4⅞	....	Continental Oil (5)	410,000	19	19⅝	14⅛	14¾	− 4
11	2¼	....	Creole Petroleum (5)	182,700	7¾	11	7¾	9	+ 1½
62	24	....	Gulf Oil Corp. (25)	36,800	58⅛	58½	45⅜	45⅜	−12⅜
88½	40	2.00	Humble Oil & Ref. (25)	25,400	87	88½	78½	80	− 5½
15¼	6½	0.50	Imperial Oil, Ltd. (No)	47,500	14¼	14½	10½	11¼	− 2⅝
19⅞	8⅞	§0.28	International Petr. (No)	82,100	19¼	19¾	16⅛	16½	− 2½
16	3¾	....	Mid-Continent (No)	69,700	14⅞	15	9½	9¾	− 4½
17⅝	4¾	....	Ohio Oil (No)	237,600	17	17⅝	12⅝	13	− 3¾
18¾	4¾	....	Phillips Petr. (No)	244,100	18¼	18¾	12⅝	12¾	− 5½
15⅜	2½	....	Pure Oil (25)	188,900	13⅛	15⅜	9¾	10	− 3
37⅜	17⅝	†6%	Royal Dutch N. Y. (13⅓)	10,000	36⅞	37⅜	30⅞	31⅝	− 4¾
43⅜	15	‡0.60	Seaboard Oil (No)	321,800	36	43⅜	31¾	33¼	− 2½
11⅝	4	....	Shell Union (No)	119,300	9⅝	9¾	6¾	6⅞	− 2⅝
12¾	4⅞	0.25	Simms Petr. (10)	13,500	11	11⅝	7⅞	8¼	− 3
9⅞	3	....	Skelly Oil (25)	12,500	9¼	9½	6⅛	6½	− 2½
15½	6	....	Socony-Vacuum (25)	405,000	14⅛	14¼	10	10¼	− 3¾
44⅞	19½	1.00	Standard Oil of Calif. (No)	217,700	42⅞	44⅞	34¾	34¾	− 7¼
34	17	1.00	Standard Oil, Ind. (25)	132,400	33½	34	26¾	28½	− 5
35	12¾	....	Standard Oil, Kansas (25)	25,400	29½	35	29	33	+ 3½
19¼	8⅜	1.00	Standard Oil, Ky. (10)	12,900	17⅛	17½	14	14⅛	− 3¼
43⅞	22¾	1.00	Standard Oil, N. J. (25)	517,600	42⅜	43⅞	38¼	38½	− 3⅞
50	35	*1.00	Sun Oil (No)	9,200	46	47¼	45	46½	+ ½
30⅛	10¾	1.00	Texas Corp. (25)	250,700	29⅞	30⅛	21⅛	21⅝	− 7⅝
11¾	3⅛	....	Tide Water Assoc. (No)	436,000	10	11¾	9⅛	9⅝	.....
23⅜	8½	1.00	Union Oil of Calif. (25)	69,500	22½	23	17⅝	17¾	− 4½
1½	⅛	....	Venezuelan Petr. (5)	23,800	1⅛	1¼	¾	¾	− ¼

[1] Since close of last month's table. † Paid for 1932—no regular rate.
‡ Also 10c extra this year.
* Also paid 2% in stock for 1932.
§ Latest dividend in Canadian funds.

S&L

OIL
COUNTRY
TUBULAR
GOODS

STEWARTS
AND LLOYDS LTD

Glasgow — Birmingham — London
Sole Agents in Trinidad for the productions of the Victaulic Co. Ltd.

London Stock Exchange Prices

1933 High	1933 Low	Last Year's Div. % per Ann.	Share	September 10 to October 12 First	High	Low	Last	Change
27/32	1 5/32	3½	Anglo-Ecuadorian	2 5/32	1 3/16	2 5/32	1 3/16	+ 1/32
1 21/32	1 7/16	10	Anglo-Egyptian "B"	1 9/16	1 21/32	1 17/32	1 21/32	+ 3/32
2 1/8	1 3/4	7½	Anglo-Persian	2 3/8	2 1/8	2 1 3/32	2 1/8	+ 1/8
1 15/32	2 9/32	25	Apex Trinidad (5s.)	1 1 3/32	1 15/32	1 1 3/32	1 7/16	+ 3/32
2 3/32	1 1/32	....	Attock	5/8	2 1/32	9/16	1 9/32	− 1/32
5/8	1/2	7½	Brit. Borneo (6s.)	9/16	1 9/32	1 7/32	1 9/32	− 1/32
1/4	3/16	....	Brit. Burmah (8s.)	1/4	1/4	7/32	7/32	− 1/32
5/16	5/32	....	Brit. Controlled ($5)	9/32	5/16	9/32	5/16	+ 1/32
2 3/32	1 3/32	....	Brit. Controlled Pfd. ($5)	5/8	2 3/32	5/8	2 3/32	+ 3/32
4½	2¾	20	Burmah	4 9/32	4½	4 9/32	4 1 5/32	+ 3/16
½	¼	....	Canadian Eagle (No par)	1 5/32	½	7/16	1 5/32	.....
5/16	3/32	....	Kern River (10s.)	9/32	5/16	¼	9/32	.....
2 1 9/32	1½	12½	Lobitos	2 1 3/32	2 1 9/32	2 1 3/32	2½	+ 3/32
4 5/32	3 7/16	14‖	London & Thames Haven	4 1/32	4 1/8	4 1/32	4 1/8	+ 3/32
5/8	5/16	....	Mexican Eagle ($4 Mex.)	1 9/32	5/8	9/16	1 9/32	.....
1 1/16	3/8	2½	Phoenix	5/8	1 1/16	5/8	1 1/16	+ 1/16
23 7/8	15 5/8	6	Royal Dutch (fl. 100)	22¾	23½	22	22 3/8	− 3/8
2 7/8	1 29/32	7½*	Shell Transport	2 3/4	2 7/8	2 23/32	2 25/32	+ 1/32
11 3/4	5 7/8	....	Shell Union (No par)	9 7/8	10 3/8	8 1/4	8 3/4	−1 1/8
2 1/32	1 1/32	4	Steaua Romana	9/16	2 1/32	9/16	2 1/32	+ 3/32
3½	2 5/32	15	Trinidad Leasehold	2 31/32	3½	2 31/32	3 3/8	+ 1 3/32
5/16	3/16	....	Untd. Brit. of Trinidad (6s. 8d.)	9/32	5/16	9/32	9/32	.....
2 3/16	1 1 9/32	12½	Venezuelan Oil Concessions	2 1/16	2 5/32	1 7/8	2	− 1/16

Nominal value of shares £1 unless otherwise stated by bracketed figures.
* Denotes Tax-free dividend. ‖ 10 percent dividend tax free plus 4 percent bonus less tax.

the possibilities of Roumanian shares, and figures have been made available in the market pointing to the rise of approximately 50 percent in the price of light petrol f.o.b. Constanza since July last. Experiences of British investors in Roumanian oil have not been encouraging in the past. Unfortunately, in the early days of the industry a number of companies were introduced in the British market without possessing either sound properties or adequate finance. Although these concerns have long since disappeared from the public eye, their history has probably acted as a deterrent to new investment in Roumania, while Phoenix and Steaua Romana, the two best-known undertakings now in that country have in recent years suffered heavily from the extreme depression in the Roumanian oil industry. Dividends paid by these companies have recently been moderate, and prices for their shares still leave ample room for improvement. This fact has contributed largely to the keen interest in their prospects, which have undoubtedly improved greatly by the raising of the American price level and its reflection in the Roumanian petroleum market.

Declaration of an interim dividend of five percent by Burmah Oil, maintaining the rate at the level of last year, conformed to general market estimates, although the possibility of a slight advance in the payment had been suggested by some dealers. For the whole of 1932 the distribution was 20 percent, a final dividend of 15 percent being declared in May last. That there was little or no disappointment at this month's announcement was evident from the action of the shares, which, after a slight relapse from the year's high record price of 4½, soon picked up again. Although the company's position in the Indian market remains difficult, the shares are among the most popular in the market. This is due largely to confidence in the industrial and financial policy of the directors, which has been reflected for many years in a position of great strength. Another reason for the consistently rising price for the shares is the absence of European interest in the company. Most of the other leading oil shares command an international market, and are therefore subject to sales on Continental account from time to time. In the case of a strong undertaking like Burmah Oil, the restriction of market interest to this country seems to make for stability, especially when, as has recently been the case, the British investing public is attracted by the shares of all sound commercial and industrial concerns.

Trinidad leaseholds' final dividend of 10 percent, making an aggregate return of 15 percent for the year to June 30, 1933, fulfils the directors' forecast in May last of an increased final distribution. The total for the twelve months compares with 12½ percent for 1931–32, a final payment of 7½ percent being made a year ago. Despite the loss of the American market owing to the tariff, the company has had some circumstances in its favor during the year to June 30. For a considerable part of that period British petrol prices stood at a higher level than in the preceding financial year, and it is believed that the company has been developing sales of its "Regent" products in Britain very successfully. Reported increase of £20,679 net revenue making the total for the year £293,408 created an excellent impression in London financial circles.

Apex (trinidad) oilfields, which disposes of its output to Trinidad Leaseholds, announces total crude production of 3,820,390 bbl. for the financial year to September 30 last. This is practically the same volume as for the previous year. Deliveries to Leaseholds at 3,828,860 bbl., involved a small draft on stocks, and compare with 3,813,194 bbl. in 1931–32. Arrangements for deliveries provide for a price for Apex crude based on the level at which the refined products can be sold, so that the British price level affects the Apex company equally with Leaseholds. In view of the fact that the Apex interim dividend was increased from 7½ percent to 12½ percent in June, the market is forecasting at least 30 percent for the financial year now closed. Dividends for the year to September 30, 1932 totalled 25 percent, but earnings were equal to 36 percent on the company's capital.

British Borneo, reported earlier in the year as having obtained a concession in Brunswick, Germany which the company proposed to explore with the help of Anglo-Persian, has recently relinquished the concession which proved to be unproductive of oil in commercial quantities. This action, however, has not effected dividend payments by British Borneo.

Alec H. Day

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Statement of the Ownership, Management, Circulation, etc., required by the Act of March 3, 1933, of World Petroleum published monthly at New York, N. Y., for October 1, 1933. State of New York, County of New York, ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared E. W. Mayo, who, having been duly sworn according to law, deposes and says that he is the editor of the World Petroleum and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Russell Palmer, 153 Waverly Place, New York City. Editor, E. W. Mayo, 153 Waverly Place, New York City. Managing Editor, none. Business Managers, none.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Russell Palmer, 153 Waverly Place, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

E. W. Mayo, Editor.

Sworn to and subscribed before me this 26th day of September, 1933.

(Seal) Anna D. Moran.
(My commission expires March 30, 1934.)